

Test Specifications Distributor-Type Fuel Injection Pump

En

46

WPP 001/4 SAV 5,2 a10

1. Edition

Testoil-ISO 4113

VA 6/100 H 1300 CR 124-10

0 460 306 266

supersedes

company **Saviem**

engine: **79721 - 75 kW**

Pre-stroke setting **0,2 mm**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 8

Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	4,6 - 5,4 mm		
1.2 Supply pump pressure	1100	5,5-6,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	50,5-51,5 cm ³ /1000 strokes		max. 3,0
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		max. 2,5
1.5 Start	100	min. 80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	44,0-50,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	800	1100	1300
	mm	1,5-2,5 (1,3-2,7)	(4,3-5,7)	6,2-7,2 (6,0-7,4)
2.2 Supply pump	rev/min	200	1100	1300
	kp/cm ²	(1,2-1,7) (1,0-1,9)	(5,3-6,2)	6,3-6,7 (6,1-6,9)
Overflow delivery	rev/min	500	1300	
	cm ³ /10 s	55-97 (40-112)	55-97 (40-112)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1460	max. 1,80	
		1400	21,0-27,0 (20,0-28,0)	
		1350	(43,0-51,0)	
		1300	52,0-55,0 (51,0-56,0)	
		700	(50,0-52,0)	
		500	46,5-50,5 (45,5-51,5)	
	Stop	1300	0	
Idle stop	Full	350-450	0	
		300	(6,0-14,0)	
	Start	100	min. 80	

5.85

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV $\approx 3,8 \text{ mm}$ Dimension V $\approx 24,65 \text{ mm}$

Test Specifications

Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 4/8 F 2500 L 60

Overflow temperature 45° C

0 460 484 005

 supersedes -
 company: Peugeot
 engine: X1D

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	2200	7,2-7,6 mm		
1.2 Supply-pump pressure	2200	6,4-7,2 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	2000	26,5-27,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	365	12,0-16,0 cm ³ /1000 strokes		
1.4 Idle regulation	2650	9,0-15,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	100	min. 40,0 cm ³ /1000 strokes		
1.6 Start	--	--		
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 1,0-2,0 (0,8-2,2)	1600 4,6-5,2 (4,2-5,6)	2200 (6,7-8,1)	2400 7,9-8,7 (7,6-9,0)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 1,9-2,7	2500 7,1-7,9		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111 (40-126)	2500 55-111 (40-126)		

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750	max. 6,0	
	2650	(8,0-16,0)	
	2450	25,5-27,5 (24,2-28,8)	
	2000	(24,7-29,3)	
	1250	25,8-28,2 (24,7-29,3)	
	600	20,0-23,0 (18,5-24,5)	
switch-off	2500	0	
Idle stop	400	max. 6,0	
	365	(10,0-18,0)	
End stop	100	min. 40,0	
	450-550		
2.4 Solenoid	Max. cut-in voltage min. 10 V Min. voltage rated voltage 12 V		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,7-1,9
SVS	max. 3,0
XK	19,5-21,5
XL	10,9-14,7
A	
B	

Observations

 Clearance between idle
 position and stop for
 increased idling
 0.5-1.0 mm

Test Specifications

Distributor-type

Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/12 F 1100 R 123-1 Overflow temperature 45° C
 0 460 424 007
 DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
 company: 4 BT-990
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers
 Pre-stroke setting 0,3 mm \pm 0,02 (0,04)

Test Instructions and Test Equipment
 see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	900	2,3 - 2,7 mm		
1.2 Supply-pump pressure	900	4,5 - 5,1 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	900	85,7 - 86,7 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery without charge-air pressure	375	18,5 - 24,5 cm ³ /1000 strokes		3,5 (4,5)
1.4 Idle regulation	1220	18,5 - 26,5 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min. 97,0 cm ³ /1000 strokes		
1.6 Start				
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	750 1,1-1,9 (0,8-2,2)	900 (1,8-3,2)	1100 3,1-3,9 (2,8-4,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,3-2,9	750 3,8-4,4	1100 5,3-5,9
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-159)	1100 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1270	max. 1,0	
	1220	(17,5-27,5)	
	1100	80,5-83,5 (79,0-85,0)	
	900	(83,2-89,2)	
	750	85,8-89,8 (84,1-91,5)	
	600	85,0-89,0 (83,3-90,7)	
switch-off			
Idle stop	450	max. 1,0	
	375	(16,5-26,5)	
	300	44,0-50,0 (42,0-52,0)	
End stop	130	min. 97,0	
	200	max. 85,0	

3. Dimensions

Designation	for assembly and-adjustment mm
K	-
KF	5,1 - 5,4
MS	1,4 - 1,6
SVS	4,2
A	
B	

Observations
 Stop check electric
 shutoff device
 at 375 min/1

2.4 Solenoid

cut-in voltage min. 10 V
 rated voltage 12 V

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Test Specifications Distributor-type Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/12 F 1150 R 123-2 Overflow temperature 45° C
0 460 424 008
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 4 BT-390
engine: 72 kW bei 2300

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers
Pre-stroke setting 0,3 mm \pm 0,02 (0,04)

Test Instructions and Test Equipment

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	900	2,3 - 2,7 mm		
1.2 Supply-pump pressure	900	4,8 - 5,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	900	86,5 - 87,5 cm ³ /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	24,5 - 30,5 cm ³ /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1230	20,0 - 28,0 cm ³ /1000 strokes		
1.6 Start	100	min. 97,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	750	900	1100
	mm	1,1-1,9 (0,8-2,2)	(1,8-3,2)	3,2-4,0 (2,9-4,3)
2.2 Supply pump	n = rev/min	400	750	1100
	bar (kgf/cm ²)	2,5-3,1	4,2-4,8	5,6-6,2
Overflow delivery	n = rev/min	400		1150
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1290	max. 2,0	
	1230	(19,0-29,0)	
	1150	80,2-83,2 (78,7-84,7)	
	900	(84,0-90,0)	
	750	87,0-91,0 (85,3-92,7)	
	400	86,7-90,7 (85,0-92,4)	
switch-off			
Idle stop	450	max. 2,0	
	375	(22,5-32,5)	
	300	46,5-52,5 (44,5-54,5)	
End stop	130	min. 97,0	
	200	max. 85,0	
2.4 Solenoid	cut-in voltage min. 10 Volt		
	rated voltage 12 V		

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,1 - 5,4
MS	1,4 - 1,6
SVS	4,2
A	
B	

Observations
Stop check electric shutoff device at 375 min/1

Test Specifications

Distributor-type

Fuel-injection Pumps

En

Testoil-ISO 4113

VE 4/12 F 1100 R 123-5 Overflow temperature 45° C
 0 460 424 011
 DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
 company: 4 BT-390
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Batches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	900	2,3 - 2,7 mm		
1.2 Supply-pump pressure	900	4,3 - 4,9 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-			
Full-load delivery without charge-air pressure	900	70,5 - 71,5 cm ³ /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	21,5 - 27,5 cm ³ /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1180	12,0 - 20,0 cm ³ /1000 strokes		
1.6 Start	100	min. 97,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	750 1,2-2,0 (0,9-2,3)	900 (1,8-3,2)	1100 3,3-4,1 (3,0-4,4)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,1-2,7	750 3,7-4,3	1100 5,2-5,8
Overflow delivery	n = rev/min cm ³ /10 s	400 55-138 (40-153)		1100 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1230	max. 1,0	
	1180	(11,0-21,0)	
	1100	65,0-68,0 (63,5-69,5)	
	900	(68,0-74,0)	
	750	70,5-74,5 (68,8-76,2)	
	400	65,0-69,0 (63,3-70,7)	
switch-off			
Idle stop	450	max. 1,0	
	375	(19,5-29,5)	
	300	41,3-47,3 (39,3-49,3)	
End stop	130	min. 97,0	
	200	max. 85,0	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,1 - 5,4
MS	1,4 - 1,6
SVS	4,2
A	
B	

Observations

Stop check electric
shutoff device
at 375 min/1

2.4 Solenoid	max. cut-in voltage rated voltage	XXX min. 10 V 12 V
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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 OPE 2,3 K
1. Edition

En

Testoil-ISO 4113

VE 4/10 F 2100 L 155-1 Overflow temperature 45° C
0460 404 036

superseded by
company: 2,3 TD
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1 500	5,1- 5,5 mm	0,8	
1.2 Supply-pump pressure	1 500	5,0- 5,6 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1 200	58,5-59,5 cm ³ /1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5 cm ³ /1000 strokes	0	3,0
1.5 Full-speed regulation	2 425	15,0-21,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 48 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	1 500		0	

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	800 1,5-2,3 (1,2-2,6)	1 200 3,4-4,0 (3,0-4,4)	1 500 (4,6-6,0)	2 100 7,9-8,7 (7,6-9,0)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	500 2,7-3,3	1 200 4,4-5,0	2 100 6,4-7,0	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	2 100 55-138 (40-153)		

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2 550	max. 6,0	0,8
	2 425	(13,5-22,5)	0,8
	2 300	28,5-35,5 (27,5-36,5)	0,8
	2 100	46,3-48,7 (44,8-50,2)	0,8
	1 200	(56,3-61,7)	0,8
	800*	43,5-44,5 (41,3-46,7)	0,3
	500	(33,8-39,2)	0
switch-off			
Idle stop	290	(11,0-20,0)	
	320	7,0-13,0 (5,5-14,5)	
	380	max. 2,5	
End stop	250	min. 50	
	400	max. 47	
2.4 Solenoid	Min. cut-in voltage 10 V XXXXXXXXX rated voltage 12 V		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	0,9-1,1
SVS	3,3
A	
B	
Observations	
* LDA stroke = 6.2 mm	
Hydr. cold-start acce- lerator (0 V)	
300 1/min 2,2-3,8 mm	
800 1/min 3,7-6,2 mm	
1 200 1/min max. 6,2 mm	

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 5,9 d 1

1. Edition

En

Testoil-ISO 4113

VE 6/12 F 1050 R 159-4 Overflow temperature 45° C
0 460 426 044
DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
company: 6 BT-590
engine: 103,3 kW bei 2100

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm $\pm 0,02$ (0,04)

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,6 - 4,0 mm		
1.2 Supply-pump pressure	750	3,6 - 4,2 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	900	83,0 - 84,0 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery without charge-air pressure	375	22,0 - 28,0 cm ³ /1000 strokes		9,5 (4,5)
1.4 Idle regulation		cm ³ /1000 strokes		
1.5 Full-speed regulation	1 125	36,0 - 44,0 cm ³ /1000 strokes		
1.6 Start	100	min. 97,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,8-2,6 (1,5-2,9)	750 (3,1-4,5)	900 4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,5-3,1		900 4,2-4,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1050 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1175 1125 1050 900 750 500	max. 1,5 (35,0-45,0) 78,5-81,5 (77,0-83,0) (80,5-86,5) 84,3-88,3 (82,6-90,0) 85,2-89,2 (83,5-90,9)	
switch-off			
Idle stop	450 375 900	max. 1,5 (20,0-30,0) 45,0-53,0 (44,0-54,0)	
End stop	130 200	min. 97,0 max. 85,0	

3. Dimensions

for assembly and adjustment mm

Designation	mm
K	-
KF	5,2 - 5,5
MS	1,4 - 1,6
SVS	0,8
A	
B	

Observations

Stop check electric
shutoff device
at 375 min/1

2.4 Solenoid ~~max.~~ cut-in voltage min. 10 Volt
~~max.~~ rated voltage 12 V

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Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 d 2

1. Edition

En

Testoil-ISO 4113

VE 6/12 F 1250 R 159-5 Overflow temperature 45° C
 0 460 426 045
 DHK: 1 688 901 016/207 + 3 bar

supersedes Cummins
 company: 6 BT-590
 engine: 96 kW bei 2500

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers
 Pre-stroke setting 0,3 min $\pm 0,02$ (0,04)

Test Instructions and Test Equipment
 see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,4 - 3,8 mm		
1.2 Supply-pump pressure	750	3,8 - 4,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-			
Full-load delivery without charge-air pressure	1 100	69,7 - 70,7 cm ³ /1000 strokes		4,0
1.4 Idle regulation	375	16,0 - 22,0 cm ³ /1000 strokes		3,5
1.5 Full-speed regulation	1 300	44,0 - 52,0 cm ³ /1000 strokes		
1.6 Start	100	min. 97 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,3-2,1 (1,0-2,4)	750 (2,9-4,3)	1 100 5,6-6,4 (5,3-6,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,7-3,8		1 100 5,1-5,7
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1 250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1 390	max. 1,5	
	1 300	(43,0-53,0)	
	1 250	65,0-68,0 (63,5-69,5)	
	1 100	(67,2-73,2)	
	750	75,7-79,7 (74,0-81,4)	
	500	75,8-79,8 (74,1-81,5)	
switch-off			
Idle stop	450	max. 1,5	
	375	(14,0-24,0)	
	300	41,0-49,0 (40,0-50,0)	
End stop	130	min. 97,0	
	200	max. 85,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,2 - 5,5
MS	1,4 - 1,6
SVS	0,8
A	
B	

Observations

Stop check electric
 shutoff device
 at 375 min/1

2.4 Solenoid min. cut-in voltage 10 V
 XXXXXXXX rated voltage 12 V

BOSCH

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4.85

A9

A9

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 p
1. Edition

En

Test ISO 4113

VE 6/10 F 2400 L 194
0 460 406 043

Overflow temperature 45° C

superseded by
company: 087T
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5-1,9 mm	1,3	
1.2 Supply-pump pressure	1500	5,7- 6,3 bar (kgf/cm ²)	1,3	
1.3 Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	1,3	max. 2,5
Full-load delivery without charge-air pressure	600	25,5-26,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	415	6,0-10,0 cm ³ /1000 strokes	0	max. 2,0
1.5 Full-speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	1,3	
1.6 Start	100	min. 40,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	see page 2
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	see page 2
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 41-83(26-98) 2400 (1,3 bar) 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2825	max. 6,0	1,3
	2675	(9,0-17,0)	1,3
	2400	35,0-36,0 (33,8-38,2)	1,3
	1500	(42,3-46,7)	1,3
	1500	41,8-44,8 (41,1-45,5)	1,05
	1000 *	37,5-38,5 (35,8-40,2)	0,7
	600	35,5-38,5 (34,0-40,0)	1,3
	600	(23,0-29,0)	0
switch-off			
electric	400	0	
Idle stop	415	(4,0-12,0)	
	750	max. 4,0	
EGR	1000	13,0-14,0	
End stop	400	min. 20	
	500	max. 30	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	6,4-6,6
MS	1,7-1,9
SVS	5,8
A	
B	

Observations

* ALDA stroke = 6.0 mm

2.4 Solenoid	min. cut-in voltage 10 V rated voltage 12 V
--------------	--

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Timing device settings

Engine speed 1/min	ALDA bar	Solenoid-op. valve V	Timing-device travel mm
1200	1.3	12	0 - 0.8
1500	1.3	12	1.5 - 1.9
2400	1.3	12	5.4 - 6.2
600	1.3	0	1.7 - 3.3
1200	1.3	0	1.7 - 3.3
1500	1.3	0	2.5 - 4.1

Supply pump pressure settings

600	1.3	12	3.3 - 3.9
1500	1.3	12	5.7 - 6.3
1500	1.3	0	6.3 - 7.3
2400	1.3	12	7.8 - 8.4

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 2,4 p
1. Edition

En

VE 6/10 F 2400 L 194-1 Overflow temperature 45° C
0 460 406 044

superseded by
company: 087F
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5- 1,9 mm	1,3	
1.2 Supply-pump pressure	1500	5,7- 6,3 bar (kgf/cm ²)	1,3	
1.3 Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	1,3	max. 2,5
Full-load delivery without charge-air pressure	600	25,5-26,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	415	6,0-10,0 cm ³ /1000 strokes	0	max. 2,0
1.5 Full-speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	1,3	
1.6 Start	100	min. 40,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	see page 2
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	see page 2
Overflow delivery	n = rev/min cm ³ /10 s	600 (0 bar) 41-83 (26-98) 2400 (1,3 bar) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2825	max. 6,0	1,3
	2675	(9,0-17,0)	1,3
	2400	35,0-36,0 (33,8-38,2)	1,3
	1500	(42,3-46,7)	1,3
	1500	41,8-44,8 (41,1-45,5)	1,05
	1000 *	37,5-38,5 (35,8-40,2)	0,7
	600	35,5-38,5 (34,0-40,0)	1,3
	600	(23,0-29,0)	0
switch-off			
mech.	2400	0	
Idle stop	415	(4,0-12,0)	
	750	max. 4,0	
EGR	1000	13,0-14,0	
End stop	400	min. 20	
	500	max. 30	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	6,4-6,6
MS	1,7-1,9
SVS	5,8
A	
B	

Observations

* ALDA stroke = 6.0 mm

2.4 Solenoid	min. cut-in voltage 10 V rated voltage 12 V
--------------	--

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Timing device settings

Engine speed 1/min	ALDA bar	Solenoid-op. valve V	Timing-device travel mm
1200	1.3	12	0 - 0.8
1500	1.3	12	1.5 - 1.9
2400	1.3	12	5.4 - 6.2
600	1.3	0	1.7 - 3.3
1200	1.3	0	1.7 - 3.3
1500	1.3	0	2.5 - 4.1

Supply pump pressure settings

600	1.3	12	3.3 - 3.9
1500	1.3	12	5.7 - 6.3
1500	1.3	0	6.3 - 7.3
2400	1.3	12	7.8 - 8.4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,4 b

1. Edition

En

PES 3 A 80 D 410/3 RS 1313

RSV 400-1250 AOC 2193 L

supersedes

company Holder

engine: 6001-3

36 kW

Komb.-Nr. 0 400 463 149

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
A. Fuel Injection Pump Settings Port closing difference control-rod travel 9 mm and max. 9 - 10° camshaft

Port closing at prestroke $\frac{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) RW = 7,5-9,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,4-9,5	5,7-5,8	0,2(0,35)			
400	6,7-6,9	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 22	400	6,3	1250	9,4-9,5
	x = 4,0						400	6,7-6,9	500	9,4-9,6
							510-570	= 2,0		
ca. 49	8,4	1290-1300								
2a	4,0	1330-1360								
	1495	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5	6	7	8	9
1250	56,5-57,5 (55,0-59,0)	1290-1300*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,0 b 1

1. Edition

En

PES 2 A 80 D 410/3 RS 1329

RSV 400-1250 AOC 2193 L

supersedes

company Holder

engine VD 6001/2

Komb.-Nr. 0 400 462 055

Port closing difference control-rod
travel 9 mm and max. 9 - 10° camshaft

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) RW = 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,7-9,8	6,0-6,1	0,2(0,35)			
400	6,7-6,9	1,1-1,7	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3-0,7	-	-	-	ca. 20	400	6,3	-	-
	x = 4,0						400	6,7-6,9		
							505-565	= 2,0		
ca. 46	8,7	1290-1300								
	4,0	1330-1360								
2a	1495	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop Control rod travel mm 9	
rev/min 1	cm ³ /1000 strokes 2			rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	
1250	59,5-60,5 (58,0-62,0)	1290-1300*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 HOR 2,4 a 1
1. Edition

En

PES 3 A 80 D 410/3 RS 1336 RSV 400-1250 AOC 2193 L
Komb.-Nr. 0 400 463 150
1-2-3 je $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes Holder
company: VD 6001-4
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7-1,8$
(1,65-1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	11,0+0,1	7,0 - 7,1	0,2 (0,35)			
400	7,9-8,1	1,3 - 1,9	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca.24	400	7,5	-	-
		X = 4,25					100	min.19,5		
ca.50	10,0	1270-1280					400	7,9-8,1		
2a	4,0	1335-1365					550-610	= 2,0		
	1500	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1230	70,0 - 71,0 (68,5 - 72,5)	1270-1280*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 i 1

1. Edition

En

PES 4 A 80 D 410 RS 2094
Komb.-Nr. 0 400 874 210

RSV 350-750 A 0 B 764 L

supersedes -
company: Daimler-Benz
OM 314
engine: 35 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC; RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,2-8,3	4,5-4,6	0,2(0,35)			
350	-	0,6-1,4	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,7	-	-	-	ca. 21	350	6,0	-	-
	x = 4,0						100	min.19,5		
ca. 33	7,2	750-755					350	5,9-6,1		
2a	4,0	801-814					380-420	= 2,0		
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to 1 rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	rev/min 5	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	45,0-46,0 (43,5-47,5)	750-755*	-	-	-	100	80,0-90,0 (77,0-93,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

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Testoil-ISO 4113

A17

A17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 c 1

1. Edition

En

PES 4 A 80 D 410 RS 2094 Z
Komb.-Nr. 0 400 874 187

RSV 350-1200 A 2 C 1004 L

supersedes
company Daimler-Benz
OM 314
engine 48 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	8,4-8,5	4,8-4,9	0,2 (0,35)			
350	6,6-6,8	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		350	6,2	1180	8,4-8,5
	x = 4,0						100	min.19,5	500	9,1-9,2
							350	6,6-6,8	1000	8,6-8,9
ca. 46	7,4	1220-1230					725-785	= 2,0		
2a	4,0	1315-1345								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1180	48,0-49,0 (46,5-50,5)	1220-1230*	500	43,0-45,0 (41,5-46,5)	100	80,0-90,0 (77,0-93,0)	-	-	-
			1000	47,0-49,0 (45,5-50,5)		=13,8-14,2 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col 2

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7.85

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 8,7 c 4

1. Edition

En

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

Komb.-Nr. 0 400 646 199

supersedes:

company: Daimler-Benz

engine: OM 360

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,2+0,1	8,6 - 8,7	0,3 (0,45)			
300	6,3-6,5	1,2 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 8				Control rod travel mm 12	
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375	300	5,6	100 300 360-400 = 2,0 500	min.7,9 5,5-5,7 max.1,0	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		cm ³ /1000 strokes 3a		cm ³ /1000 strokes 3b		Control rod travel mm 7	
1250	86,0-87,0 (84,0-89,0)	-	-	800	80,0-83,0 (78,0-85,0)	100	min. 16,0 mm 300

Checking values in brackets

7.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 18

1. Edition

PES 3 A 85 D 410/3 RS 2642
Komb.-Nr. 0 400 863 009

RSV 325-1250 A 8 C 2168-2 L

En

supersedes
KHD
company F 3 L 913
engine 45 kW/2500 min⁻¹
Tractor DX 3.50

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,9+0,1	7,1-7,2	0,3(0,5)			
325	7,9-8,1	0,7-1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 22	325	7,5	1250	10,9-11,0
	x = 4,0								500	11,4-11,5
ca. 51	9,9	1290-1300					325	7,9-8,1	1045	11,0-11,2
2a	4,0	1365-1395					480-540	= 2,0		
	1520	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1250	70,5-71,5 (68,5-73,5)	1290-1300*	800	62,5-64,5 (60,0-67,0)	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

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Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 4,0 a 1

1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AB 1201-1 L
Komb.-Nr. 0 400 844 084

supersedes -

company: Daimler-Benz

engine: OM 364

55 kW

Set the stop screw to control-rod travel 3 - 3,5 mm!
Values apply to fuel-injection test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,9+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,8-1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 21	100 300 570-630=2,0	max. 10,3 8,7-8,9	300 500 750 500	0,8-1,3 2,3-2,8 4,1-4,3 8,6
ca. 63	9,9 4,0 1630	1440-1450 1545-1575 0-1,0				3a				

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500 900	50,0-53,0 (47,5-55,5) 52,5-55,5 (50,0-58,0)	100	78,0-88,0 (75,0-91,0) =16,3-16,7 mm RW	1400 500 800 1200	10,9+0,1 12,3+0,1 12,0+0,2 11,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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A21

A21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 6,0 b

1. Edition

En

PES 6 A 90 D 410 RS 2667

RSV 300-1400 AOC 2006-2 L

supersedes Daimler-Benz

Komb.-Nr. 0 400 876 331

company OM 366

Values apply to fuel-injection test tubing

engine 100 kW

1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35
(2,20-2,40) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1380	10,7+0,1	6,5 - 6,6	0,3 (0,45)			
300	7,8-8,0	0,6 - 1,0	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	300	8,1	1380	10,7-10,8
	x = 4,5						100	min. 19,5	500	11,9-12,0
ca. 66	9,7	1430-1440					300	8,0 - 8,2	900	11,3-11,5
2a	4,0	1490-1520					430-490	= 2,0		
	1650	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to .) rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1380	65,0 - 66,0 (63,0 - 68,0)	1430-1440*	500	53,0 - 55,0 (50,5 - 57,5)	100	78,0-88,0 (75,0-91,0)	-	-	-
					300	6,0-10,0 (4,0-12,0)			

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 c

1. Edition

En

PES 4 A 90 D 320 RS 2670 RSV 350-1150 A2B 2129-5 R
Komb.-Nr. 9 400 085 244

supersedes

company MWM

engine PID A 229-4
57 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	8,9-9,0	0,3 (0,5)			
325	6,4-6,6	1,3-1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel rev/min mm 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-	ca. 18	325	6,0	1150	10,7-10,8
	x = 4,5						100	min. 19,0	500	11,7-11,8
							325	6,4-6,6	800	11,6-11,8
							430-490	= 2,0	950	11,2-11,3
ca. 48	9,7	1190-1200								
2a	4,0	1250-1280								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit. Note: changed to ...)		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop		4a Control rod travel	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min		mm	
1	2	3		4	5	6	7	8		9	
1150	89,0-90,0 (87,0-92,0)	1190-1200*		500	93,0-95,0 (91,5-97,5)	100	19,0-21,0 mm RW	325		4,0-4,5	
				800	98,5-100,0 (96,0-103,0)						

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

A23

A23

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 5,9 d

1. Edition

En

PES 6 A 90 D 320 RS 2671

RSV 350-1150 A 2 B 2129-5 R

supersedes MWM

Komb.-Nr. 9 400 085 242

company PID A 229-6

engine. 85 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,8+0,1	9,0 - 9,1	0,3 (0,5)			
325	6,4-6,6	1,3 - 1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.18	325	6,0	1150	10,8-10,9
		X = 4,5					100	min. 19,0	500	11,9-12,0
ca.48	9,8	1190-1200					325	6,4 - 6,6	900	11,6-11,9
2a	4,0	1250-1280					430 - 490	= 2,0		
	1400	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	90,0 - 91,0 (89,0 - 92,0)	190-1200*	500	96,0 - 98,0 (94,5 - 99,5)	100	19,0-21,0 mm RW	325	4,0-4,5	
			900	98,5 - 100,5 (96,0 - 103,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Testoil-ISO 4113

A24

②

Test Specifications

Fuel Injection Pumps ②

and Governors

40

WPP 001/4 DAF 6,2 p

1. Edition

En

PES 6 A 95 D 320 RS 2693 RQ 300/1300 AB 1205 R
 Komb.-Nr. 0 400 846 539
 Values apply to fuel-injection test tubing
 1 680 750 015

supersedes:
 company: DAF
 engine: DNTD 620
 110 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,8+0,1	6,4-6,6	0,35(0,6)			
300	6,1-6,3	0,7-1,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
800	19,2-20,8	850	20,0	9,3	1335-1350	300	6,2	100	min. 7,6	850	11,5-11,6
VH =	max. 46°			4,0	1400-1430			300	6,1-6,3	1290	10,3-10,4
								520-560	=2,0	970	11,1-11,3
										1080	10,5-10,7

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At 1335-1350 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1290	69,0-71,0 (66,5-73,5)	850	850	64,0-66,0 (62,0-68,0)	100	125,0-135,0 (122,0-138,0)

Checking values in brackets

5.85

B1

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B1

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RAB 10,8 b

1. Edition

En

PES 6 A 100 D 410 RS 3039 RQ 200/1100 AB 1215 L

Komb.-Nr. 0.401 246 013

supersedes

company RABA

D 2156 MTKLL 6

engine: 206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 1,6-1,7 \\ (1,55-1,75) \end{matrix}$ mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,4+0,1	15,0-15,2	0,3(0,6)			
200	6,7-6,9	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
600	19,2-20,8	600	20,0	12,4	1145-1160	200	6,8	100 min.8,2	1100	13,5-13,6	
				4,0	1195-1225			200 6,7-6,9	600	14,7-14,8	
VH=	max. 46°							325-365= 2,0	870	14,3-14,5	
									920	13,7-14,0	

 Torque-control travel 0,45 mm on flyweight assembly dimension a = 1145-1160 min⁻¹ Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
LDA 1100	0,7 bar 150,0-152,0 (148,0-154,0)	-		LDA 750	0,7 bar 163,0-166,0 (160,5-168,5)	100	195,0-205,0 (192,0-208,0)
				LDA 500	0 bar 107,5-110,5 (105,5-112,5)		

Checking values in brackets

6.85

D. Adjustment Test for Manifold Pressure Compensator

RAB 10,8 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 3039 + RQ..AB 1215 L	0,70	0 0,45 0,33	14,5-14,6 11,5-11,6 13,7-13,8 12,1-12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,2 a

1. Edition

En

PE 8 AM 90 D 321 RS 2014 RQV 275-1500 AB 837 R

Komb.-Nr. 0 405 058 201

supersedes -

company: RVI

engine: HS 115

191 KW

1-8-7-3-6-5-4-2 je 45 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC) Port closing mark cyl. 7

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,2+0,1	8,7-8,8	0,3(0,45)			
275	6,6-6,8	1,6-2,0	0,4 (0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1600	15,2-17,8	-	-	-	ca. 12	100	min. 8,2	100	0-0,3
ca. 66	9,2	1595-1605					275	6,6-6,8	275	1,2-1,3
	4,0	1660-1690							325	1,6-1,8
									450	2,3-2,5
									1600	9,1
						325-475				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	87,0-88,0 (85,0-90,0)	1595-1605 *	-	-	100	158,0-168,0 (155,0-171,0) = 17,5-17,9 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PES 4M 55 C 320 RS 152-1
RSF 360/2300 M 60
Komb.-Nr. 0 400 074 950
1- 3- 3 - 2
0-90-180-270

supersedes-

company: Daimler-Benz
OM 601
engine: 54 kW
USA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
2,00-2,10
(1,95-2,15)

mm (from BDC)

RW = 2,0,0-22,0 mm

Control rod travel

Note: Before starting testing, observe the important instructions on the reverse.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (compensating valve) mm
1	2	3	4	2	3	6
1000	12,1+0,1	3,4-3,5	0,25(0,3)			
335	5,4-5,6	0,5-0,6	0,1(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min	Degree of deflection of control lever	Control rod travel mm	Rotational speed rev/min		Rotational speed rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
8-12	① min. 9,5	225	50	⑦ 11,3-11,5	2200		⑫ 100	min. 20,1
	② 5,4-5,6	335		⑧ 5,5-5,7	2500		⑬ 1800	11,7-11,9
	③ 4,2-4,4	400 **		⑨ -			⑭ 2200	11,3-11,5
	④ 1,5	590-690		⑩ 0-1,0	2950			
	⑤			⑪			⑥	Switching point

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery Test oil temp 40°C (104°F)		Full-load speed regulation		Variations in fuel delivery		Starting fuel delivery Idle		Difference cm ³ /1000 strokes
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	
1	2	3		4	5	6	7	8
2200	36,0-38,0 (35,0-39,0)	2500 * RW = 5,5-5,7		1800	36,0-37,5 (35,0-38,5)	100	min. 55 5,0-6,0 (4,5-9,0)	6,0 1,0 (1,5) ⑫a
				1000	34,0-35,0 (33,0-36,0)	2500	14,0-19,0 (13,0-20,0)	2,5 (3,0) ⑮
								see point 8a ⑯

Checking values in brackets

* ca. 5,0 mm less control rod travel than in Column 2

1. ** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.1-4.5 mm)

2. Setting the idle control lever position:

At 1000 rpm, control rod travel 0.9 - 1.0 mm.

3. Checking the idle speed auxiliary spring shut-off

Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm. Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.

4. Checking the pneumatic shut-off box

Control lever on idle stop.

At $n = 335$ rpm and $p_u = 450$ mbar, the control rod must travel rapidly to control rod position = 0 mm.

5. Overflow valve 1 469 990 351,

6. Port closing difference between largest/smallest value max. 1° camshaft angle.

7. Checking the electronic idle speed control

Control lever on idle stop.

At $n = 360$ rpm and $I = 1.8$ A, control rod travel = (12.0 - 13.4 mm)
Delivery = (31.0-38.0 cm³/1000 strokes).

Starting test with $I = 1.8$ A.

At $n = 2950$ rpm, control lever on full load stop, $I = 3$ A (briefly).
Control rod travel = 0-1 mm.

8. Port closing setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3) $^\circ$ camshaft angle after cylinder 1.

9. Checking the governor with altitude compensator box

Speed rpm	Pressure (absolute) mbar	Control rod travel deviation from max. full load control rod travel (mm)
1000	930	0.1-0.5
1000	840	1.1-1.3
1000	700	2.3-2.7

10. Pin projection distance = 16.65 ± 0.05 mm.

11. Start-of-delivery sensor setting

Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3) $^\circ$ camshaft angle after cylinder 1.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 n

1. Edition

En

Testoil-ISO 4113

PES 4 M 55 C 320 RS 152-3
RSF 375/2300 M 55-4
Komb.Nr. 0 400 074 936
1- 3- 4 - 2
0-90-180-270

supersedes

company: Daimler-Benz

engine: OM 601

53 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10 mm (from BDC)
(1,95-2,15)

Control rod travel

RW = 20,0-22,0 mm

Note: Before starting testing, observe the important instructions on the reverse.

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	11,1+0,1	3,1-3,2	0,25(0,3)			
375	5,4-5,6	0,5-0,6	0,1 (0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in .

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed	Control rod travel
1	mm	rev/min	4	mm	rev/min	7	rev/min	mm
13-17	① min.11,5	250	50	⑦ 10,3-10,5	2200		⑫ 100	min.20,1
	② 5,4-5,6	375		⑧ 7,8-8,2	2500		⑬ 1800	10,8-11,0
	③ 4,4-4,6	400 **		⑨ -			⑭ 2200	10,3-10,5
	④ 1,5	630-730		⑩ 0-1,0	2900			
	⑤			⑪			⑥	Switching point

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		⑩	Full-load speed regulation		⑧a	Variations in fuel delivery		⑬	Starting fuel delivery		⑭	Difference		
Test oil temp. 40°C (104°F)														
rev/min	cm ³ /1000 strokes		rev/min			rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes		cm ³ /1000 strokes		
1	2		3			4	5		6	7		8		
2200	33,0-35,0 (32,0-36,0)		2500 *			1800	34,0-35,5 (33,0-36,5)		100	min. 55		6,0		⑫a
			RW = 7,8-8,2						375	5,0-6,0 (4,5-9,0)		1,0		
						1000	31,0-32,0 (30,0-33,0)		2500	22,0-26,0 (21,0-27,0)		2,5 see		⑮
												(3,0)point		⑯
												8a		⑰

Checking values in brackets

* ca. 2,4 ⑰ 1 mm less control rod travel than in Column 2

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1. ** Checking the idle speed auxiliary spring setting at $n = 400$ rpm, control rod travel (4.3-4.7 mm).
2. Setting the idle control lever position:
At 1000 rpm, control rod travel 0.9 - 1.0 mm.
3. Checking the idle speed auxiliary spring shut-off
Control lever position 50° , after change-over point (from starting curve) until 1000 rpm, max. permissible control rod travel 0.2 mm.
Control lever position 48.5° ; after change-over point (from starting curve) control rod travel must be greater than 0.2 mm.
4. Checking the pneumatic shut-off box
Control lever on idle stop.
At $n = 375$ rpm and $p_u = 450$ mbar, the control rod must travel rapidly to control rod position = 0 mm.
5. Overflow valve 1 469 990 351,
6. Port closing difference between largest/smallest value max. 1° camshaft angle.
7. Setting the idle speed control rod travel on the pneumatic idle boost box
When doing this, release the lock nut.
8. Checking the pneumatic idle boost:
With 0.4 bar vacuum, $n = 425$ rpm, control rod travel = (7.0 - 8.6 mm)
Delivery = (11.0 - 19.0 cm³/1000 strokes).
9. Apply 0.8 bar vacuum to the pneumatic idle boost box via a three-way valve and a pressure gauge. Using the three-way valve, disconnect the vacuum supply from the pneumatic idle boost box and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. Start-of-delivery sensor setting
Start-of-delivery sensor setting and locking according to average port closing value for all cylinders 19.5 ± 0.2 (0.3°) camshaft angle after cylinder 1.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 8,8g

1. Edition

En

Testoil-ISO 4113

PES 8 MW 100/720 RS 1110

RQV 500-1200 MW 29

0 403 448 120

supersedes

Perkins

company:

TV 8.640 GR

engine:

185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) 9 - 12 mm RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	13,8+0,1	9,9 - 10,1	0,35(0,6)			
500	7,3-7,4	0,95- 1,35	0,35(0,55)			
800	13,8+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200 1400	15,2-17,8 0,1-1,0	-	-	-	ca.15	500 100	7,3-7,4 min.100		
ca.64	12,8 4,0	1220-1225 1270-1285				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1180	99,0-101,0 (97,0-103,0)		800	93,0-97,0 (91,0-99,0)	100	19,0-21,0 mm RW 90,0-100,0 (87,0-103,0)		
					500	9,5-13,5 (7,0-16,0)		
					100-400	(80-420)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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Port closing and TDC markings

Comb. - No.

° camshaft between port-closing
and TDC

... 120

at control-rod travel 10,5 mm

15°

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 g 2

1. Edition

En

PE 6 P 120 A 320 RS 285/Z
Komb.-Nr. 0 401 846 326/Z

RQ 250/1100 PA 196 R

supersedes _

company: DAF

engine: DRS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,4+0,1	21,6-22,0	0,5(0,90)			
600	9,8-9,9	13,4-13,8	-			
250	6,2-6,4	1,1-1,5	0,8(0,95)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
700	15,6-16,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 max. 1,0	250	6,3	100 min. 7,4 250 6,2-6,4 440-480=2,0		-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 1100	0,7 bar 216,0-220,0 (213,0-223,0)	-	-	LDA 600	0 bar 133,5-137,5 (129,5-141,5)	100	320,0-360,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 g 2

Test at n = 600 rev/min decreasing pressure – in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 285/Z + RQ..PA 196 R	0,70	0,37 0	11,4-11,5 11,0-11,1 9,8-9,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 g 1

1. Edition

En

PE 6 P 120 A 320 RS 285/Z
Komb.-Nr. 0 401 876 185/Z

RSV 250-1100 P 5/390 R

supersedes

company DAF

engine: DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,4+0,1	21,6-22,0	0,5(0,9)			
250	6,2-6,4	1,1-1,5	0,8(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm/rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,8	400	11,6-11,7
	X =						250	6,2-6,4	300	11,8-12,3
							360-420	= 2,0		
ca. 54	10,4	1140-1150								
2a	4,0	1210-1240								
	1380	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 216,0-220,0 (213,0-223,0)	1140-1150*		LDA 600	0 bar 133,5-137,5 (129,5-141,5)	100	320,0-360,0 RW = 19,5- 21,0 mm	250	6,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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B13

BA3

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 g 1 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 285/Z + RSV..P 5/390 R	0,70	0,37 0	11,4-11,5 11,0-11,4 9,8-9,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps (1A)

and Governors

40

WPP 001/4 DEE 7,6 a 2
1. Edition

En

PES 6 P 110 A 720 RS 361 RSV 400-1100 P2/471
Komb.-Nr. 9 400 231 044

supersedes
company John Deere
engine 6466 A

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85
(2,70-2,90) mm (from BDC) Port closing mark 13,25° after
port closing cylinder 1

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	16,0-16,2	0,4 (0,75)			
400	6,3-6,5	1,9-2,5	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 21	400	5,6	1050	11,7+0,1
		x = 4,5					100	min. 19,0	730	11,7+0,1
							400	6,0-6,2	650	12,3+0,1
							600-660	= 2,0		
							850	max. 1,0		
ca. 44	10,7	1095-1105								
2a	4,0	1185-1215								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	0,93 bar 160,0-162,0 (157,0-165,0)	1095-1105		LDA 650	0,93 bar 170,0-174,0 (167,0-177,0)	100	155,0-175,0 = 210 mm RW	400	6,3
				LDA 550	0 bar 88,0-96,0 (87,0-93,0)	400	19,0-25,0 (17,0-27,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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B15

B15

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 a 2 -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P .. RS 361 + RSV .. P 2/471	0,53	0,27	11,1-11,2 9,3 - 9,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

 WPP 001/4 MB 11,8 n
1. Edition

En

 PE 6 P 110 A 720 RS 371
Komb.-Nr. 9 400 087 319

RQV 300-1050 PA 747

 supersedes
company Daimler-Benz.
OM 355 A
engine 210 KW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,8-2,9) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,5+0,1	16,1-16,3	0,4 (0,75)			
300	5,9-6,1	1,6-2,1	0,35(0,45)			

 Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max ca. 68	1100 10,5 4,0 1300	15,2-17,8 1090-110 1060-1090 0 - 1,0	-	-	-	ca. 14 380-440 ③a	100 300 530-590 = 2,0	min. 8,6 5,9-6,1 = 2,0	260 450 800 1070	1,0-1,4 2,5-2,8 5,4-5,7 8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	161,0-163,0 (159,0-165,0)	1090-1100*	500	152,0-156,0 (149,0-159,0)	100	144,0-160,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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B17

B.17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 6

1. Edition

En

PE 6 P 120 A 320 RS 372/Z
Komb.-Nr. 0 401 876 229/Z

RSV 250-1100 P 5/458 R

supersedes
company DAF
DKS 1160
engine:

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,4+0,1	21,6-22,0	0,5 (0,90)			
250	6,2-6,4	1,1-1,5	0,8 (0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,8	400	11,6-11,7
	x =						250	6,2-6,4	300	11,8-12,3
ca. 54	10,4	1140-1150					620-680	= 2,0		
2a	4,0	1265-1295								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1100	0,7 bar 216,0-220,0 (213,0-223,0)	1140-1150*	LDA 600	0 bar 133,5-137,5 (129,5-141,5)	100	320,0-360,0 RW = 19,5-21,0 mm	250	6.3	

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 6 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 372/Z + RSV..P 5/458 R	0,70	0,37 0	11,4-11,5 11,0-11,1 9,8-9,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 o 8

1. Edition

En

PE 6 P 120 A 320 RS 372/Z

RQ 250/1100 PA 417 R

Komb.-Nr. 0 401 846 396/Z

supersedes -

company: DAF

engine: DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,4+0,1	21,6 - 22,0	0,5(0,90)			
600	9,8-9,9	13,4 - 13,8	-			
250	6,2-6,4	1,1 - 1,5	0,8(0,95)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
700	15,6-16,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 max. 1,0	250	6,3	100 250 480	min. 7,4 6,2 - 6,4 - 480= 2,0	-	-				

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 0 8

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P .. RS 372/Z + RQ .. PA 417 R	0,70	0,37 0	11,4 - 11,5 11,0 - 11,1 9,8 - 9,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 i 13

1. Edition

En

PE 6 P 110 A 320 RS 372-1/Y
Komb.-Nr. 0 401 846 463/Y

RQ 250/1100 PA 417-1

supersedes...

company: DAF

engine: DKA 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,1+0,1	11,5-11,7	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
700	15,6-16,4	700	16,0	10,1	1150-1165 4,0 1220-1250 1350 max. 1,0	250	6,7	100	min. 7,8 250 6,6-6,8 460-500 = 2,0	-	-

Torque-control travel

on flyweight assembly dimension a = mm

Speed regulation: $1150-1165 \text{ min}^{-1}$

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
850	114,5-116,5 (111,5-119,5)	-	-	-	-	100	245,0-285,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 o 9

1. Edition

En

PE 6 P 120 A 320 RS 372-1/2 RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 464/Z

supersedes -
company: DAF
engine: DKS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,4-0,1	20,4 - 20,8	0,5(0,90)			
600	9,8-9,9	13,4 - 13,8	-			
250	6,2-6,4	1,1 - 1,5	0,8(0,95)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6		Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10		Control rod travel mm 12	
700	15,6-16,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 max. 1,0	250	6,3	100 250 440	min. 7,4 6,2 - 6,4 480 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1135 - 1150 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel mm 8
LDA 850	0,7 bar 204,0 - 208,0 (201,0 - 211,0)	-	-	LDA 600	0 bar 133,5 - 137,5 (129,5 - 141,5)	100	320,0 - 360,0 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

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B23

B23

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 o 9

- 2 -

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372-1/Z + RQ .. PA 417 R	0,70	0,37 0	11,4 - 11,5 11,0 - 11,1 9,8 - 9,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 ± 15

1. Edition

En

PE 6 P 110 A 320 RS 372-1/2 RQ 250/1100 PA 417-1
Komb.-Nr. 0 401 846 463/Z

supersedes
company: DAF
engine: DKT 1160
206 kW

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC bei RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,1	15,3-15,6	0,4(0,75)			
250	7,0-7,2	1,0-1,4	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
700	15,6-16,4	700	6,0	11,8 4,0 1400	1145-1160 1230-1260 max. 1,0	250	7,1	100 min. 8,0 250 7,0-7,2 470-510 = 2,0		-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 850	0,7 bar 152,5-155,5 (150,0-158,0)	-		LDA 600	0 bar 127,5-130,5 (124,0-134,0)	100	245,0-285,0 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 15

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1/2 +RQ.. PA 417-1	0,70	0,36 0	12,8-12,9 12,5-12,6 11,4-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 7

1. Edition

En

PE 6 P 120 A 320 RS 372-1/Z
Komb.-Nr. 0 401 876 255/Z

RSV 250-1100 P 5/458 R

supersedes
company DAF
engine DKS 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
($2,75-2,95$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,4+0,1	20,4-20,8	0,5(0,90)			
250	6,2-6,4	1,1-1,5	0,8(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,8	400	11,6-11,7
	X =						250	6,2-6,4	300	11,8-12,3
ca. 54	10,4	1140-1150					620-680	= 2,0		
②a	4,0	1265-1295								
	1380	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
LDA 850	0,7 bar 204,0-208,0 (201,0-211,0)	1140-1150*	LDA 600	0 bar 133,5-137,5 (129,5-141,5)		100	320,0-360,0 RW = 19,5- 21,0 mm	250	6,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 7 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 372-1/2 + RSV..P 5/458 R	0,70	0,37 0	11,4-11,5 11,0-11,1 9,8-9,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384/Z

RQ 250/1000 PA 442 R

Komb.-Nr. 0 401 846 410/Z

supersedes

company DAF

engine: DKDL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 3,20-3,30
(3,15-3,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,0+0,1	9,8-10,0	0,3(0,55)			
250	7,1-7,3	0,9-1,3	0,3(0,60)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
550	15,6-16,4	550	16,0	9,1 4,0 1200	1055-1070 1080-1110 max. 1,0	250	7,2	100 250 330-370=2,0	min.8,7 7,1-7,3 =2,0	600 710 805 1000	11,0-11,1 10,7-10,9 10,2-10,5 10,1-10,3

Torque-control travel on flyweight assembly dimension a = 0,40 mm

Speed regulation: At 1055-1070 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
600	98,0-100,0 (96,0-102,0)	600		1000	93,0-97,0 (91,0-99,0)	100	170,0-210,0 RW = 19,5- 21,0 mm

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 m 8

1. Edition

En

PE 6 P 100 A 320 RS 384/Z
Komb.-Nr. 0 401 846 412/Z

RQ 250/1100 PA 450/2 DR

supersedes...

company: DAF

engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke
3,20-3,30
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,9+0,1	11,4-11,7	0,3(0,60)			
1050	11,1+0,1	10,4-10,9	-			
225	7,3-7,5	0,8-1,2	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
550	15,6-16,4	550	16,0	10,1 4,0 1300	1145-1160 1175-1205 max. 1,0	225	7,4	100 225 325-365=2,0	min.7,5 7,3-7,5 =2,0	600 825 915 1050	11,9-12,0 11,7-11,9 11,1-11,4 11,1-11,2

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
600	114,0-117,0 (112,5-118,5)	600		1050	104,0-109,0 (102,5-110,5)	100	195,0-235,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 14

1. Edition

En

PE 6 P 110 A 320 RS 385-1/M
Komb.-Nr. 0 401 876 256/M

RSV 250-900 P 7/479

supersedes
company DAF
engine DKS 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
($2,75-2,95$) mm (from BDC) bei RW = $9,0-12,0$ mm

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,6+0,1	19,2-19,6	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 46	12,6	915-920					260-320	= 2,0		
2a	4,0	935-940								
	1100	0,3-1,7								

The numbers denote the sequence of the tests ^{**} max. speed difference between control-rod travel 12,6 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
750	191,5-195,5 (189,5-197,5)	915-920*	-	-	100	-			
						RW = 19,5-21,0 mm			

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

C7

C7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 15

1. Edition

En

PE 6 P 110 A 320 RS 385-1/N
Komb.-Nr. 0 401 876 256/N

RSV 250-750 P 7/479

supersedes
company DAF
engine: DKS 1160

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BD bei RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,6+0,1	19,2-19,6	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 39	12,6	790-795					260-320	= 2,0		
2a	4,0**	810-825								
	950	0,3-1,7								

** max. speed difference between control-rod travel 12,6 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
750	191,5-195,5 (189,5-197,5)	790-795*	-	-	100	RW = 19,5- 21,0 mm			

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 16

1. Edition

PE 6 P 110 A 320 RS 385-1/P
Komb.-Nr. 0 401 876 256/P

RSV 250-950 P 7/479

supersedes DAF
company DKS 1160
engine

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC bei RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
925	13,3+0,2	18,9-19,3	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min Control rod travel mm 8 9			3 Torque control rev/min Control rod travel mm 10 11	
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
ca. 49	X =						250	6,8-7,0		
	12,3	965-970					260-320	= 2,0		
	4,0**	985-1000								
2a	1100	0,3-1,7								

The numbers denote the sequence of the tests
** max. speed difference between control rod travel 12.3 and 4,0 mm = 20 - 30 min/i.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
925	188,5-192,5 (186,5-194,5)	985-1000*	-	-	-	100	RW = 19,5- 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 17

1. Edition

En

PE 6 P 110 A 320 RS 385-1/R
Komb.-Nr. 0 401 876 256/R

RSV 250-900 P 7/479

supersedes
company DAF
engine DK 1160

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,0-11,2	13,9-14,2	0,4(0,75)			
250	6,8-7,2	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 52	10,0	915-920					260-320	= 2,0		
2a	4,0**	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests
** max. speed difference between control-rod travel 10.0 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
750	138,5-141,5 (136,0-144,0)	915-920*	-	-	100	RW = 19,5- 21,0 mm	-	-	

Checking values in brackets

* 1 mm less control rod travel than 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 18

1. Edition

En

PE 6 P 110 A 320 RS 385-1/S
Komb.-Nr. 0 401 876 256/S

RSV 250-750 P 7/479

supersedes -

company: DAF

engine DK 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Port closing difference =
0.9-1.0 mm between control-
rod travel 9 mm and control-
rod travel 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,0-11,2	13,9-14,2	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 44	10,0	790-795					260-320	= 2,0		
②a	4,0**	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests
** max. speed difference between control-rod travel 10.0 and 4,0 mm = 20 - 30 min/1.

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
750	138,5-141,5 (136,0-144,0)	790-795*	-	-	100	RW = 19,5- 21,0 mm			

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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C11

CA1

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 7

1. Edition

En

PE 6 P 110 A 320 RS 407/Z
Komb.-Nr. 0 401 846 405/Z

RQ 300/1100 PA 428/2 R

supersedes -

company: DAF

engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
($2,75-2,95$) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	14,1-14,4	0,4 (0,75)			
600	12,0+0,1	13,7-14,0	-			
300	7,6-7,8	2,3-2,7	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,3 4,0 1350	1145-1160 1200-1230 max. 1,0	300	7,7	100 300 375-415	min. 9,1 7,6-7,8 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3		rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 140,5-143,5 (138,0-146,0)	-		LDA 600	0 bar 136,5-139,5 (133,0-143,0)	100	245,0-285,0 RW = 19,5- 21 mm

Checking values in brackets

5.85

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C12

CAL

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n.7

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 407/Z + RQ..PA 428/2 R	0,70	0,30 0	12,3-12,4 12,1-12,2 12,0-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 8

1. Edition

En

PE 6 P 110 A 320 RS 407-1/X
Komb.-Nr. 0 401 846 469/X

RQ 300/1100 PA 428/2 R

supersedes

company: DAF

engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDQ) $\text{Bei RW} = 9,0-12,0 \text{ mm}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	14,1-14,4	0,4(0,75)			
600	10,5+0,1	10,2-10,5	-			
300	7,6-7,8	2,3-2,7	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm rev/min 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm rev/min 9		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5	rev/min 6	Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
600	15,6-16,4	600	16,0	11,3 4,0 1350	1145-1160 1200-1230 max. 1,0	300	6,4	300 100	6,2-6,5 min.10	-	-

Torque-control travel on flyweight assembly dimension a = mmSpeed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel mm
LDA 850	0,7 bar 140,5-143,5 (138,0-146,0)	-		LDA 600	0,9 bar 101,5-104,5 (98,0-108,0)	100	245,0-285,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

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C14

C14

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 8

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 407-1/X + RQ..PA 428/2 R	0,70	0,13 0,09 0	12,3-12,4 11,8-11,9 10,9-11,2 10,5-10,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 5

1. Edition

En

PE 6 P 110 A 320 RS 407-1/Y
Komb.-Nr. 0 401 846 469/Y

RQ 275/1100 PA 428/2 R

supersedes-
company: DAF
engine: DKVL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,1	15,3-15,6	0,4(0,75)			
600	12,0+0,1	13,7-14,0	-			
275	7,0-7,2	1,0-1,4	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 10		Control rod travel mm 12	
700	15,6-16,4	700	16,0	11,8 4,0 1350	1135-1150 1200-1230 max. 1,0	275	7,1	100 275 350-390=2,0	min.7,0 7,0-7,2 350-390=2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 850	0,7 bar 152,5-155,5 (150,0-158,0)	-	-	LDA 600	0 bar 136,5-139,5 (132,0-142,0)	100	245,0-285,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

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C16

C16

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 5

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS407-1/Y + RQ .. PA 428/2 R	0,70	0,255 0	12,8-12,9 12,5-12,6 12,0-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 n 6

1. Edition

En

PE 6 P 110 A 320 RS 407-1/Z
Komb.-Nr. 0 401 846 469/Z

RQ 300/1100 PA 428/2 R

supersedes -

company: DAF

engine: DKTL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDQ) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	14,0-14,4	0,4 (0,75)			
600	12,0+0,1	13,7-14,0	-			
300	7,6-7,8	2,3-2,7	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,3 4,0 1350	1145-1160 1200-1230 max. 1,0	300	7,7	100 300 375-415	min. 9,1 7,6-7,8 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		3a		3b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 140,0-143,5 (137,5-145,5)	-		LDA 600	0 bar 136,5-139,5 (132,0-144,0)	100	245,0-285,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 6

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 407-1/Z + RQ..PA 428/2 R	0,70	0,30 0	12,3-12,4 12,1-12,2 12,0-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 g 1

1. Edition

En

PES 6 P 110 A 720 RS 3083-1

RSV 400-1100 P 2/489

Komb.-Nr. 9 400 231 084

supersedes:
company John Deere
6466 A
engine: 161 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,45-3,55
(3,40-3,60) mm (from BDC)

Port closing mark cyl. 1 : 13° after
port closing.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,7+0,1	13,8-14,0	0,4(0,75)			
400	5,4-5,6	0,8-1,2	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees rev/min 8			3 Torque control rev/min Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm per min 3		4	5	6	Control rod travel mm 9			10	11
loose	800	0,3-1,0	-	-	-	ca. 24	400	5,0	1100	10,7-10,8
	x =						400	5,4-5,6	700	11,9-12,2
							600-650	= 2,0		
ca. 49	9,7	1155-1165								
2a	4,0	1200-1230								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit. Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 5		4a Idle stop rev/min Control rod travel mm 9	
LDA 1100	0,9 bar 137,5-139,5 (134,5-142,5)	1155-1165*		LDA 700	0,9 bar 154,0-160,0 (151,0-163,0)	100	150,0-170,0 =20,0-21,0 mm RW	-	-
				LDA 500	0 bar 103,0-109,0 (101,0-111,0)	1200	47,0-57,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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4.85

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 o 1

1. Edition

En

PES 6 P 120 A 820 LS 3095-10 RSV 350-750 P 1 A 487
Komb.-Nr. 0 402 076 717

supersedes -
company: Daimler-Benz
engine: OM 407 A
169 kW (230 PS)

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 mm (from BDC) cyl. 6; RW = 9,0-12,0 mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
730	12,4±0,1	19,6 - 19,8	0,5 (0,8)			
350	5,7-5,9	3,0 - 4,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7			Lower rated speed rev/min 8			3 Torque control rev/min 10		Control rod travel mm 11	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	7	8	9	10	11	12	13	14	15	16
loose	700	0,3-1,0 X = 2,25	-	-	-	-						-		-	
ca. 33 2a	11,4 4,0 900	750-755 776-789 0,3-1,7													

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		4a Control rod travel mm 9	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	cm ³ /1000 strokes 4	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	cm ³ /1000 strokes 9	rev/min 8	Control rod travel mm 9
730	196,0-198,0 (193,0-201,0)	745-760 *	-	-	-	100	170,0-190,0 (166,0-194,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 STE 9,7 b 3

1. Edition

En

PE 6 P 110 A 721 RS 3101
Komb.-Nr. 0 401 856 705

RQ 300/1200 PA 412-1

supersedes...

company: Steyr

engine: WD 615.67

206 KW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

^{2,8-2,9}
(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,4+0,1	13,1-13,3	0,4(0,75)			
300	5,8-6,0	1,2-1,8	0,4(0,70)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,4 4,0 1400	1225-1240 1300-1330 0-1,0	300	5,9	100 300 400	man. 7,3 5,8-6,0 440=2,0	1200 700	10,4-10,5 11,5-11,6

Torque-control travel
on flyweight assembly dimension a =

0,35

mm.

Speed regulation: At

1225-1240 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1200	0,9 bar 131,0-133,0 (128,0-136,0)	-		LDA 700	0,9 bar 150,0-154,0 (147,0-157,0)	100	250,0-280,0 (246,0-284,0)
				LDA 700	0 bar 120,0-122,0 (117,0-125,0)		

Checking values in brackets

05.85

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D. Adjustment Test for Manifold Pressure Compensator

STE 9,7 b 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3101 + RQ..PA 412-1	0,90	0 0,53 0,44	11,5-11,6 9,9-10,0 11,2-11,3 10,2-10,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 c

1. Edition

En

PE 12 P 120 A 120 RS 7106 RQV 350-900 PA 730

supersedes -

company: Baudouin

engine: V 12 P 15-2

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,6-3,7 (3,55-3,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,0+0,1	33,9-34,1	0,5(0,9)			
350	4,5-4,7	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 8	350	4,6	300	0,7-1,0
ca. 48	11,0	940-950					100	min.6,1	500	3,1-3,8
	4,0	1000-1030							800	5,5-6,9
	1150	0-1,0				350-440			900	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	339,0-341,0 (336,0-344,0)	940-950*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

Testoil-ISO 4113

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7 b 2

1. Edition

En

PE 6 P 110 A 721 RS 3101

RQV 250-1250 PA 413-1

Komb.-Nr. 0 401 856 703

supersedes

company Steyr

engine: WD 615.67/77
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	16,2-16,4	0,4(0,75)			
250	5,8-6,0	1,2-1,8	0,4(0,70)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 11	100	min. 7,3	250	0,9-1,0
ca. 47	11,0	1290-1300					250	5,8-6,0	380	1,7-2,2
	4,0	1365-1395					340-400 = 2,0		550	3,5-4,2
	1500	0-1,0							650	4,4-4,9
									1290	8,5

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)	1290-1300*	LDA 700	0,7 bar 165,0-169,0 (163,0-171,0)	100	240,0-270,0 (236,0-274,0)	1200	12,0+0,1
			LDA 700	0 bar 120,0-122,0 (117,0-125,0)			500	12,5+0,1
							880	12,3+0,2
							1060	12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

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D1

D. Adjustment Test for Manifold Pressure Compensator

STE 9,7 b 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3101 + RQV..PA 413-1	0,70	0 0,53 0,38	12,0-12,1 9,8-9,9 11,5-11,6 10,2-10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 r

1. Edition

En

PES 6 P 110 A 720 RS 3104

RQ 300/1250 PA 620

supersedes

company: KHD

engine: BF 6L 413 FRIC

199 KW

Testoil-ISO 4113

Komb.-Nr. 0 402 046 728

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,80-2,90

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	14,2+0,1	18,1-18,4	0,4(0,75)			
300	6,7-6,9	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8	600	20,0	13,2 4,0 1450	1295-1305 1355-1385 0 - 1,0	300	6,8	100 min. 8,3 300 6,7-6,9 345 - 385 = 2,0		-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1295-1305 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /~1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /~1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 1250	0,9 bar 180,5-183,5 (178,0-186,0)	-	-	LDA 500	0 bar 123,0-125,0 (120,0-128,0)	100	190,0-210,0 (186,0 - 214,0)

Checking values in brackets

06.85

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D3

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 r -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3104 + RQ..PA 620	0,90	0	14,2-14,3 11,9-12,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 7
1. Edition

En

PE6P 110 A 320 RS 3108 RQV 250-1100 PA 589-1
Komb.-Nr. 9 400 087 330

supersedes
company: Volvo
engine: THD 100 ED

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,1+0,1	15,8-16,0	0,4(0,8)			2,5± 0,1
250	5,0-5,2	3,2-3,6	0,3(0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1175	15,2-17,8	-	-	-	ca. 10	100	min. 6,7	250	1,2-1,4
ca. 6 5	11,1	1160-1170					250	5,0-5,2	500	4,1-4,8
	4,0	1225-1255					345-405	= 2,0	700	6,4-6,6
	1350	0-1,0							1000	
									1100	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 700	0,75 bar 158,0-160,0 155,0-163,0	1160-1170*	LDA 700	0 bar 105,0-107,0 (102,0-110,0)	100	160,0-190,0 = 20,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 7 - 2 -

Test at $n = 500$ rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P .. RS 3108 + RQV .. PA 589-1	0,75	0 0,60 0,30	12,1 - 12,2 9,3 - 9,4 11,3 - 11,5 9,6 - 9,7

Notes:

(1) when $n =$ rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 g

1. Edition

En

PE 6 P 110 A 320 RS 3109

RSV 650-750 P 4/421

supersedes Volvo-Penta
company TID 100 kg
engine 202 kW

Komb.-Nr. 0 401 876 737

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,5-3,6}{(3,45-3,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,8±0,1	19,2 - 19,4	0,4 (0,75)			2,5 ± 0,1
650	4,1-4,3	1,7 - 2,1	0,3 (0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 32	650	4,2	-	-
	x = 2,25						650	4,1-4,3		
ca. 37	12,8	750-755					640-700	= 2,0		
2a	4,0	776-789								
	930	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to .) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
700	192,0 - 194,0 (189,0 - 197,0)	750 - 755*	-	-	650	17,0-21,0 (14,5-23,5)	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 STE 12,0 b 3

1. Edition

En

PE 8 P 110 A 121 LS 3113

RQ 300/1100 PA 646-1

Komb.-Nr. 0 401 858 702

supersedes

company: Steyr

engine: WD 815.67

242 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $2,8-2,9$
 $(2,75-2,95)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,8+0,1	15,0-15,2	0,4(0,75)			
300	6,1-6,3	1,5-2,1	0,4(0,70)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 8				Control rod travel mm 12	
600	15,6-16,4	600	16,0	10,8	1145-1160	300	6,2	100	min.7,6	1100	11,8-11,9
				4,0	1200-1230			300	6,1-6,3	600	12,7-12,8
				1350	0-1,0			370-430	=2,0		

Torque-control travel
on flyweight assembly dimension a = 0,45 mmSpeed regulation: At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 1100	0,9 bar 150,0-152,0 (147,0-155,0)	-		LDA 600	0,9 bar 166,0-170,0 (163,0-173,0)	100	200,0-240,0 (196,0-244,0) =RW 20,0-21,0 mm
				LDA 500	0 bar 107,0-109,0 (104,0-112,0)		

Checking values in brackets

05.85

D. Adjustment Test for Manifold Pressure Compensator

STE 12,0 b 3

- 2 -

Test at n = 500 rev/min decreasing pressure -- in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 3113 + RQ..PA 646-1	0,90	0 0,65 0,48	12,7-12,8 9,7-9,8 12,2-12,4 10,6-10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps ②

and Governors

PE 12 P 130 A 520/6 RS 3114-1 RQ 425/1250 PA 697

superdes

Komb.-Nr. 0 401 830 706

compact SCM

1-8 - 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 -12

engine V12 \pm 736 KW0-15-60-75-120-135-180-195-240-255-300-315 $\circ \pm 0,5 \circ (\pm 0,75 \circ)$

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC)
 $(2,75-2,95)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,4-0,1	23,9-24,2	0,6 (1,0)			
425	6,3-6,5	2,7-3,3	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Setting point		Test specifications		Setting point		Test specifications		Control	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	10,4	1295-1310	425	6,4	100	min. 7,9	1250	11,4+0,1
				4,0	1345-1375			425	6,3-6,5	750	11,3+0,2
	VH max. 46 °			1450	0 - 1,0			465-505	= 2,0		

Torque-control travel
on flyweight assembly dimension a = mmSpeed regulation: 1295-1310 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
Setting point		Setting point		Setting point		Setting point	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
LDA 1000	0,9 bar 239,0-242,0 (235,5-245,5)	-		LDA 750	0 bar 174,0-177,0 (170,5-180,5)	-	

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator

SSC 31,8 b - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12..RS 3114-1 + RQ .. PA 697	0,90	0 0,420 0,275	11,4-11,5 9,4-9,5 10,9-11,0 10,0-10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 720 RS 3115
Komb.-Nr. 0 401 846 800
Beachte Seite 2

RQ 200/1100 PA 719

supersedes—
company: Scania
engine: DN 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,3-3,4}{(3,25-3,45)}$ mm (from BDG) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,4+0,1	11,9-12,1	0,5(0,7)			
225	5,4-5,6	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
1300	15,2-17,8	1300	16,5	11,4 4,0 1400	1145-1160 1260-1290 0-1,0	225	5,5	100 225 330-370	min. 6,9 5,4-5,6 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /~1000 strokes 2		3a		cm ³ /~1000 strokes 5		cm ³ /1000 strokes/mm 7	
600	119,0-121,0 (117,0-123,0)	-		1100	119,5-124,5 (117,0-127,0)	100	240,0-290,0 =20,0-21,0 ... mm RW

Checking values in brackets

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 10. 4. 1984
- Start of fuel delivery-engine: 21° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications

Fuel Injection Pumps ② and Governors

WPP 001/4 RAB 11,0 a

1. Edition

En

PE 6 P 120 A 720 RS 3125 RQ 250/1100 PA 705
 Komb.-Nr. 0 401 846 792
 Calibrating nozzle-and holder assembly 0 688 901 019
 Test-pressure line 1 680 750 067

supersedes
 company: RABA
 engine: D 11 T
 206 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	18,6-18,8	0,5(0,9)			
250	6,0-6,2	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,0	1145-1160	250	6,0	100	min. 7,5	100	11,0-11,1
VH = max. 46°				4,0	1225-1255			250	5,9-6,1	700	11,0-11,2
				1350	0-1,0			320-360	= 2,0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 1100	0,9 bar 186,0-188,0 (183,0-191,0)	-		LDA 1100	0 bar 130,0-132,0 (127,0-135,0)	-	-
				LDA 700	0 bar 179,0-185,0 (176,0-188,0)	1	

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator.

RAB 11,0 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3125 + RQ..PA 705	0,90	0 0,66 0,38	11,0-11,1 8,5-8,6 10,4-10,5 9,0-9,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,7 a 1

1. Edition

En

PES 6 P 110 A 820 LS 3131

RQ 300/1100 PA 722

Komb.-Nr. 0 402 046 750

supersedes—

company: DB

engine: OM 427 H

150 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 4,3-4,4 \\ (4,25-4,45) \end{matrix}$ mm (from BDC) cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	9,4±0,1	11,0-11,2	0,4(0,8)			
300	7,2-7,4	1,4-2,0	0,4 (0,8)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	8,4 4,0 1300	1145-1160 1195-1225 0 - 1,5	300	7,3	100 300 380-420 = 2,0	min. 8,8 7,2-7,4 2,0	100 500 850 950	9,4-9,5 10,2-10,4 9,8-10,1 9,6-9,8

Torque-control travel on flyweight assembly dimension a = 0,50 mm

Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	110,0-112,0 (107,5-114,5)	-	500	96,0-100,0 (93,0-103,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

5.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 f

1. Edition

En

PE 6 P 110 A 320 RS 3132 RSV 200-1100 P. 1/421-1
Komb.-Nr. 0 401 876 738

supersedes—
company Volvo-Penta
engine TID 100 K
225 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,5-3,6}{(3,45-3,65)}$ mm (from BD ϕ) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	16,5-16,7	0,4 (0,75)			2,5 \pm 0,1
200	4,2-4,4	1,7-2,1	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	250	3,8	-	-
	x = 4,0						250	4,2-4,4		
	1,6	1140-1150					245-305	= 2,0		
2a	4,0	1175-1205								
	1340	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational-speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery		(5)		(4a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle				Control rod travel	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
700	165,0-167,0 (163,0-170,0)	1140-1150*	-	-	-	-	-	-	-	-	-
					200	17,0-21,0 (14,5-23,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

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D17

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ROL 12,2 f

1. Edition

En

PE 6 P 120 A 320 RS 3135

RQV 250-975 PA 709

supersedes

Komb.-Nr. 0 401 846 802

company Rolls Royce

1-4-2-6-3-5 je 60 ° \pm 0,5 ° (\pm 0,75 °)

engine Eagle 3 LI

Values only apply to test nozzle-and-holder assembly

197 kW

1 688 901 019 and fuel-injection test tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Mark for end of pump delivery 6.25°
before end of pump delivery, cyl. 1

A. Fuel Injection Pump Settings

Port closing at prestroke (5,15-5,35) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,0+0,1	18,9-19,1	0,5 (0,9)			
250	6,7-6,9	1,7-2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1040	15,2-17,8	-	-	-	ca. 20	100	min. 8,2	250	1,1-1,3
ca. 64	11,0	1015-1025					250	6,7-6,9	330	2,1-2,6
	4,0	1085-1115							450	3,2-3,5
	1250	0 - 1,0				325-475			1020	8,2-8,4
									1100	9,2-9,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	189,0-191,0 (186,0-194,0)	1015-1025*	500	167,0-173,0 (164,0-176,0)	100	180,0-210,0 (176,0-214,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.35

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D18

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②

Test Specifications

Fuel Injection Pumps ② and Governors

40

WPP 001/4 RVI 12,0 g
1. Edition

En

PES 6 P 120 A 320 RS 3136 RQ 750 PA 597

Komb.-Nr. 0 402 046 754

supersedes -

company: RVI

engine: MIDR 063540

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,5-3,6}{(3,45-3,65)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,8+0,1	33,1-33,3	0,5 (0,9)			
250	4,8-5,0	1,5-2,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	13,8 4,0 900	750-755 787-800 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	331,0-333,0 (328,0-336,0)	-	-	-	-	-

Checking values in brackets

5.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,5 a 1

1. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 RS 3140

RQV 275-1150 PA 501-3

Komb.-Nr. 0 402 046 760

supersedes

compa IVECO-UNIC

engine 8460.21.002

177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	14,6-14,9	0,4 (0,75)			
275	6,7-6,9	2,2-2,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1210	15,2-17,8	-	-	-	ca. 15	100	min.8,4	250	1,2-1,4
ca. 65	10,5	1190-1200					275	6,8-7,0	500	3,6-4,1
	4,0	1300-1330							900	6,3-6,5
	1450	0-1,0				290-405			1150	7,9-8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 146,0-149,0 (143,5-151,5)	1190-1200*	LDA 500	0 bar 131,0-134,0 (128,5-136,5)	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

D20

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D20

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,5 a 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar, gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3140 + RQV..PA 501-3	0,70	0 0,265	11,5-11,6 11,0-11,1 11,2-11,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications

Fuel Injection Pumps ② and Governors

40

WPP 001/4 ROL 12,2 g

1. Edition

En

PE 6 P 110 A 320 RS 3142 RQ 750 PA 584

Komb.-Nr. 0 401 846 807

1-4-2-6-3-5 je $60^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company: Rolls Royce

engine: C 6.132 G

132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,4-3,5
(3,35-3,55)

mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	14,9+0,1	16,4-16,6	0,4(0,75)			
300	8,6-8,8	1,9-2,5	0,45(0,75)			

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	13,9 4,0 850	750-755 785-795 0-1,0	-	-	-	-	-	-

Torque-control travel

on flyweight assembly dimension a = - mm

Speed regulation: At 750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
700	164,0-166,0 (161,0-169,0)	-	-	-	-	-	-

Checking values in brackets

7.85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 b

1. Edition

En

PES 6 P 110 A 720 RS 3145 RQV 350-1300 PA 748

Komb.-Nr. 9 400 087 305

supersedes:

company: Ford

engine: 6,6 l TC

123 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,25-4,35 mm (from BDC)
(4,20-4,40)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	11,6+0,1	9,4-9,7	0,4 (0,75)			
350	6,9-7,1	1,0-1,5	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	350	0,6-1,3
ca. 64	10,6	1360-1370					350	6,9-7,1	500	2,3-2,7
	4,0	1470-1500					580-640	= 2,0	800	4,0-4,3
	1600	0-1,0				370-440			1000	5,0-5,3
						③a			1300	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	93,5-96,5 (91,0-99,0)	1360-1370*	600	87,5-91,5 (84,5-94,5)	100	105,0-125,0 (101,0-129,0) = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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D23

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 15,9 b 1

1. Edition

En

PES 6 P 120 A 320 RS 7105

RQV 350-900 PA 730

Komb.-Nr. 0 402 746 802

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes ~

company: Baudouin

engine: 6 P 15-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,6-3,7}
(3,55-3,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,0+0,1	33,9-34,1	0,5(0,9)			
350	4,5-4,7	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 25	100	min.6,1	300	0,7-1,0
ca. 62	11,0 4,0 1150	940-950 1000-1030 0-1,0				350-450	350	4,5-4,7	500 800 900	3,1-3,8 6,5-6,9 8,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	339,0-341,0 (336,0-344,0)	940-950*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RVI 14,9 d

1. Edition

En

PES 8 P 120 A 320 RS 3146

RQ 275/950 PA 753

supersedes-

Komb.-Nr. 0 402 048 702

company: RVI

1-8-4-2-7-3-6-5 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

engine: MIVR 083530

Values only apply to test nozzle-and-holder assembly

294 kW

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark $11,5^{\circ}$ after
port closing cylinder 1.

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
(3,45-3,65) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
500	12,2+0,1	20,8-21,0	0,5(0,9)			
275	4,1-4,3	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
950	16,6-18,2	950	17,4	10,0	1005-1015	275	4,2	200	min. 6,2	500	12,2-12,3
VH=	max. 46 °			4,0	1070-1100			275	4,1-4,3	950	10,9-11,0
				1250	0 - 1,0			310-350	= 2,0	675	11,8-12,0
										810	11,2-11,5

Torque-control travel
on flyweight assembly dimension a = 0,50 mmSpeed regulation: At 1005-1015 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 500	0,7 bar 208,0-210,0 (205,0-213,0)	-		LDA 950	0,7 bar 190,0-194,0 (187,0-197,0)	100	160,0-180,0 (156,0-184,0)
				LDA 500	0 bar 119,0-121,0 (116,0-124,0)	275	17,0-23,0 (14,0-26,0)

Checking values in brackets

4.85

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E1

E1

D. Adjustment Test for Manifold Pressure Compensator

RVI 14,9 d - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 8 P..RS 3146 + RQ .. PA 753	0,70	0 0,36 0,14	12,2-12,3 9,2-9,3 11,6-11,7 9,9-10,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 MB 14,6 s

1. Edition

En

PE 8 P 110 A 320 LS 3802-10 RSV 650-1150 POA 820-2
Komb.-Nr. 0 401 878 704

supersedes
company Daimler-Benz
engine OM 422

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) cyl. 8
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,9±0,1	12,4-12,6	0,4(0,8)			
650	4,8-5,0	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
loose	800	0,3-1,0	-	-	-	ca. 27	650	4,9	-	-
	X = 3,0						100	min.19,5		
ca. 44	9,9	1160-1170					650	4,8-5,0		
	4,0	1190-1210								
	1300	0,3-1,7								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit. Note: changed to ...) rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		5 Idle stop rev/min Control rod travel mm 8 9	
1100	124,0-126,0 (121,5-128,5)	1160-1170*	-	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 e 2

1. Edition

En

PE 6 P 120 A 320 LS 3810 RSV 350-1150 POA 810

1- 6- 3- 5- 2 - 4

0-75-120-195-240-315° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company Daimler-Benz

OM 421 A

engine 184 k W

Komb.-Nr. 0 401 876 733

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	10,6+0,1	16,3-16,5	0,5 (0,9)			
350	4,7-4,9	1,6-2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 36	350	4,8	-	-
	x =	4,75					100	min. 19,5		
							350	4,7-4,9		
ca. 56	9,6	1175-1185					330-440	= 2,0		
2a	4,0	1250-1270						**		
	1350	0,3-1,4								

The numbers denote the sequence of the tests ** Set idle auxiliary-spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
1130	163,0-165,0 (160,0-168,0)	1175-1185*	-	-	100	140,0-160,0 (136,0-164,0)			

Checking values in brackets

* 1 mm less control rod travel than col 2

3.85

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E4

E4

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 e 3

1. Edition

En

PE 6 P 120 A 320 LS 3810-10 RQV 350-1150 PA 720

1- 6- 3 - 5 - 2 - 4

0-75-120-195-240-315° + 0,5° (+ 0,75°)

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company Daimler-Benz

OM 421 A

engine: 134 kW

Komb.-Nr. 0 401 846 775

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC)
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	16,3 - 16,5	0,5(0,9)			
350	4,8-5,0	1,4 - 2,0	0,8(1,2)			
600	-	C, Sp. 4 u.5	0,8(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 11	100	min. 6,7	300	0,6-0,9
ca. 62	10,0	1175-1185					350	4,8-5,0	580	3,6-3,7
	4,0	1280-1290							870	5,2-5,3
	1360	0-1,5				350-500			1150	7,6

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 163,0-165,0 (160,0-168,0)	1175-1185 *	LDA 600	0,7 bar 170,0-176,0 (167,0-179,0)	100	140,0-160,0 (136,0-164,0)	1050	11,0+0,1
LDA 1150	0,7 bar 128,0-131,0 (125,0-134,0)		LDA 500	0 bar 146,0-148,0 (143,0-151,0)			850	11,3+0,2
**							950	11,1+0,1

Checking values in brackets

** Adjusted at the inner lever of the reduced-delivery stop ^{*1 mm less control rod travel than col. 2}

4.85

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E5

E5

D. Adjustment Test for Manifold Pressure Compensator

MB 11,0 e 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..LS 3810-10 + RQV..PA 720	0,70	0 0,45	11,3 - 11,5 10,8 - 11,0 11,1 - 11,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 q 4

1. Edition

En

PE 6 P 120 A 320 LS 3815-10 RSV 750-1150 P 1 A 820-4

1 - 6 - 3 - 5 - 2 - 4

0 - 75 - 120 - 195 - 240 - 315° + 0,5° (+ 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company: Daimler-Benz

engine: OM 421 A

184 kW

Komb.-Nr. 0 401 876 740

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 mm (from BDC) Zyl. 6
(3,95 - 4,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	11,0+0,1	16,3 - 16,5	0,5 (0,9)			
750	3,4-3,6	1,8 - 2,4	0,8 (1,2)			
975	-	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 36	750	3,7	1180	11,0-11,1
		x = 4,0					750	3,6-3,8	975	11,6-11,8
ca. 60	10,0	1210-1220					655 - 815	= 2,0		
2a	4,0	1240-1260								
	1350	0,3- 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1180	163,0-165,0 (160,0-168,0)	1160-1170* **	975	174,0-180,0 (171,0-183,0)	100	140,0-160,0 (136,0-164,0)	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

** To check the full-load delivery, there may be 1 mm speed regulation only at 1210 - 1220 min/1.

3.85

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Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w 1

1. Edition

En

PE 6 P 120 A 720 RS 7007 RQV 275-1000 PA 539-5
Komb.-Nr. 0 402 646 818
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
company Saab-Scania
engine DSC 1101

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,5-4,6$ mm (from BDC) $RW = 6,0-8,0$ mm
(4,45-4,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,7±0,1	21,0-21,2	0,7(1,0)			3,3±0,1
275	4,4-4,6	1,1-1,8	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1040	15,2-17,8	-	-	-	ca. 8	100	min. 5,9	250	1,5-1,7
ca. 62	13,7	1040-1050					275	4,4-4,6	500	3,6-4,0
	4,0	1210-1240					320-380	= 2,0	750	5,2-5,5
	1350	0-1,0							1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 210,0-212,0 (207,0-215,0)	1040-1050*	LDA 1000	0,9 bar 201,0-209,0 (199,0-211,0)	100	240,0-290,0 = 20,0-21,0 mm RW		
			LDA 500	0 bar 164,0-168,0 (162,0-170,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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E8

E8

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 7007 + RQV..PA 539-5	0,90	0 0,41 0,29	14,7-14,8 11,8-11,9 14,0-14,1 12,4-12,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2. 11. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-3-6-2-4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d 1

1. Edition

En

PE 8 P 120 A 920/4 LS 7008

RQV 275-950 PA 547-4

supersedes

Komb.-Nr. 0 402 648 811

company: Saab-Scania

1- 2- 7- 3 - 4 - 5 - 6 - 8

engine: DSC 1406

0-45-90-135-180-225-270-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,5-4,6$ mm (from BDC) RW = $6,0-8,0$ mm
(4,45-4,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2 \pm 0,1	20,1-20,3	0,7(1,0)			3,3 \pm 0,1
275	4,4-4,6	1,1-1,8	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	990	15,2-17,8	-	-	-	ca. 8	100	min. 5,9	250	1,5-1,7
ca. 60	13,2 4,0 1300	990-1000 1170-1200 0-1,0					275	4,4-4,6	500	3,6-4,0
							320-380 = 2,0		750	5,2-5,5
									1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000*	LDA 950	0,9 bar 194,0-202,0 (192,0-204,0)	100	250,0-300,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

Testoil-ISO 4113

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E10

E 40

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 7008 + RQV..PA 547-4	0,90	0 0,35 0,24	14,2-14,3 11,5-11,6 13,6-13,7 12,1-12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2. 11. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-4-2-6-3-7-8

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 18,0 b

1. Edition

En

PE 6 P 130 A 720 RS 7009 RQV 350-900 PA 749

Komb.-Nr. 0 402 646 823

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes -
company: Guascor
F 180
engine: 220 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,10}{(2,95-3,15)}$ mm (from BDC) $RW = 9,0 - 12,0$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	13,8+0,1	31,7 - 32,0	0,6 (1,0)			
350	5,6-5,8	2,6 - 3,2	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	940	15,2-17,8				ca. 12	100	min.7,2	300	0,9-1,2
ca. 62	12,8	940-950					350	5,6-5,8	700	4,7-5,2
	4,0	1010-1040							900	7,5-7,8
	1150	0-1,0				355-455				
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)	Torque-control travel (5) Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1	2	3	4	5	6	7	8
900	317,0-320,0 (313,5-323,5)	940-950 *			350	26,0-32,0 (22,0-36,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

Test Specifications

Fuel Injection Pumps ②

and Governors

WPP 001/4 SCA 9,0 b

En 1. Edition

PE 6 P 120 A 320 RS 7102
Komb.-Nr. 0 402 646 822

RQ 200/1000 PA 745

supersedes -

company: Scania

engine: DS9 03

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $5,0-5,1$ mm (from 3DC)
(4,95-5,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	16,3 - 16,5	0,6(0,9)			3,3 ± 0,1
225	4,8-5,0	1,5 - 1,9	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
1000	15,2-17,8	1000	16,5	11,0 4,0 1300	1045-1060 1150-1180 0-1,0	225	4,9	100 225 305-	min. 6,3 4,8-5,0 345=2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1045-1060 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 700	0,9 bar 163,0 - 165,0 (160,0 - 168,0)	-	-	LDA 1000 LDA 500	0,9 bar 162,0 - 170,0 (160,0 - 172,0) 0 bar 141,0 - 145,0 (139,0 - 147,0)	100	240,0 - 290,0 = 20,0 - 21,0 mm RW

Checking values in brackets

4.85

D. Adjustment Test for Manifold Pressure Compensator

SCA 9,0 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel ⁽¹⁾	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	
PE 6 P.. RS 7102 + RQ.. PA 745	0,90			12,0 - 12,1
		0		11,3 - 11,4
		0,42		11,7 - 11,8
		0,38		11,5 - 11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 4. 10. 1984
- Start of fuel delivery-engine: 15° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/SCA 9,0 c

1. Edition

En

PE 6 P 120 A 320 RS 7103

RQV 200-1100 PA 712

Komb.-Nr. 0 402 746 801

supersedes -

company:

Saab-Scania

engine:

DSC 901

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,5-4,6}{(4,45-4,65)}$ mm (from BDC) RW 6,0 - 8,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,5+0,1	17,8 - 18,0	0,7(1,0)			3,3 ± 0,1
225	4,6-4,8	1,5 - 1,9	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca. 8	100	min. 6,1	225	0,8-0,9
ca. 63	11,5	1140-1150					225	4,6-4,8	350	2,2-3,1
	4,0	1290-1320					290-350=2,0		420	3,6-4,5
	1450	0 - 1,0							550	4,9-5,1
									1140	8,6-8,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,9 bar 178,0-180,0 (175,0-183,0)	1140-1150 *	LDA 1100	0,9 bar 177,0-185,0 (175,0-187,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 138,0-142,0 (136,0-144,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

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E15

E15

D. Adjustment Test for Manifold Pressure Compensator

SCA 9,0 c

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P .. RS 7103 + RQV .. PA 712	0,90	0 0,435 0,335	12,5 - 12,6 10,2 - 10,5 11,9 - 12,0 10,6 - 10,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 4. 10. 1984
- Start of fuel delivery-engine: 15° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 26,5 b 1

1. Edition

En.

PE 8 ZW 160/120 RS 1027/11 RQUV 300-900 ZWA 51 R
Komb.-Nr. 0 402 438 025

Replaces-

Firm: MTU

Engine:

1-2-6-3-4-5-7-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $2,5-2,6$ mm (from BDC) cyl. 8
 $(2,45-2,65)$

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600	18	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	min ⁻¹ 8	Control-rod travel mm 9	min ⁻¹ 10	Control-rod travel mm 11
ca. 79	700	18,0-18,1	ca. 27	375	8,0	ca. 21	375	8,0	-	-
ca. 79	17,0 4,0 1100	905-925 1000-1050 0 - 2,0		200 300 500 590-720 = 0	14,3-17,2 10,3-11,8 2,5-3,7		200 300 500 590-720 = 0	14,3-17,2 10,3-11,8 2,5-3,7		

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	Idle stop min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known	300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

1.85

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Testoil-ISO 4113

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 19,9 e 1

1. Edition

En.

PE 6 ZW 160/120 RS 1028/11

RQUV 300-900 ZWA 51 R

Replaces -

Komb.-Nr. 0 402 436 058

Firm: MTU

Engine: 396

1- 2- 3 - 4 - 5 - 6

0-45-120-165-240-285° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

 Port closing at prestroke ^{2,5-2,6}
 (2,45-2,65) mm (from BDC) cyl. 6

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600 600	18,0 9,0	513,0-523,0 140,0-160,0	16,0 (24,0) 12,0 (18,0)	510,0-526,0 135,0-165,0	-

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	min ⁻¹ 8	Control-rod travel mm 9	min ⁻¹ 10	Control-rod travel mm 11
ca. 79	700	18,0-18,1	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 79	17,0 4,0 1100	905-925 1000-1050 0-2,0	(max. 30)	200 300 500 590-720 = 0	14,3-17,2 10,3-11,8 2,5-3,7		200 400 485-590 = 0	10,8-14,2 3,9-5,0		

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	Idle stop 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known	300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

Testoil-ISO 4113

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 19,9 e

1. Edition

En.

PE 6 ZW 160/120 RS 1028/11

RQUV 300-1200 ZWA 51 R

Replaces -

Komb.-Nr. 0 402 436 057

Firm: MTU

1- 2- 3 - 4 - 5 - 6

Engine: 6 V 331

0-45-120-165-240-285° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke², 5-2,6(2,45-2,65) mm (from BDC) cyl. 6

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
600	18,0	513,0-523,0	16,0 (24,0)	510,0-526,0	
600	9,0	140,0-160,0	12,0 (18,0)	135,0-165,0	
300	9,0	72,0-92,0	11,0 (16,0)	67,0-97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm 9	mm min ⁻¹ 10	Control-rod travel mm 11
ca. 84	1200	18,0-18,1	ca. 27 (max. 30)	375	8,0	ca. 27	300	8,0	-	-
	17,0	1205-1225		200	14,3-17,2		200	10,8-14,2		
	4,0	1320-1380		300	10,3-11,8		400	3,9-5,0		
	1400	0-2,0		500	2,5-3,7		485-590	= 0		
				590-720	= 0					

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	Idle stop min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
-	not known	300 RW = 8,0 mm	-	-	-	-

Checking values in brackets

Test specifications

Fuel injection pumps and governors

WP 001/4 MTU 39,7 • 1

1. Edition

En.

PE 12 ZW 150/120 RS 1029

RQV 300-1200 ZWA 51 R

Replaces 3.82

1-12- 9- 4-5 - 8 - 11- 2 - 3 - 10- 7 - 6

Firm: MTU

0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ (\pm 0,75^\circ)$

Engine: 12 V 331

Note VDT-Gen./7

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Komb.-Nr. 0 412 430 012

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$

mm (from BDC) Control rod in central position

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	8,0	501,0-511,0	15,0(22,0)	498,0-514,0	
600	9,0	110,0-130,0	15,0(22,0)	107,0-133,0	
300	9,0	46,0-72,0	10,0(15,0)	43,0-75,0	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm 9	mm min ⁻¹ 10	Control-rod travel mm 11
ca. 84	1200	18,0-19,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 84	1200	18,0-19,0		200	14,3-17,2		200	10,8-14,2		
	17,0	1205-1225		300	10,3-11,8		400	3,9-5,0		
	4,0	1320-1380		500	2,5-3,7		485	590 = 0		
	1400	0 - 2,0		590	720 = 0					

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		idle speed	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3		min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
not known		-		-	-	300	8,0 mm RW

Checking values in brackets

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 39,7 c 2

1. Edition

En.

PE 12 ZW 160/120 RS 1029/11 RQUV 300 - 900 ZWA 51 R

Komb.-Nr. 0 402 430 010

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Replaces

Firm: MTU

Engine: 396

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

 Port closing at prestroke $\begin{matrix} 2,5 - 2,6 \\ (2,45 - 2,65) \end{matrix}$ mm (from BDC)

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
600	18,0	513,0-523,0	22,0 (33,0)	510,0 - 526,0	-
600	9,0	140,0-160,0	12,0 (18,0)	135,0 - 165,0	
300	9,0	72,0- 92,0	11,0 (16,0)	67,0 - 97,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm min ⁻¹	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm min ⁻¹	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm min ⁻¹	Control-rod travel mm min ⁻¹	mm min ⁻¹	Control-rod travel mm min ⁻¹
1	2	3	4	5	6	7	8	9	10	11
ca. 79	900	18,0-18,1	ca. 27	375	8,0	ca. 21	300	8,0	-	-
ca. 79	700	18,0-18,1		200	14,3-17,2		200	10,8-14,2		
	17,0	905 - 925		300	10,3-11,8		400	3,9- 5,0		
	4,0	1000 -1050		500	2,5- 3,7		485	590 = 0		
	1100	0 - 2,0		590	720 = 0					

Torque control travel a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	cm ³ /1000 strokes
1	2	3	4	5	6	7	
-	not known	300 RW = 8,0 mm	-	-	-	-	-

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LOM 3,7 b

3. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-750 A 7 B 2183-1 R
Komb.-Nr. 0 400 474 161 A 7 C 2183-1 R

supersedes 10.84

company Lombardini
engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,7 - 2,8$
(2,65-2,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,2-9,3	5,3-5,4	0,25(0,4)			
350	7,9-8,1	3,0-3,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3 - 0,7	-	-	-	ca. 22	350	7,5	-	-
	x = 3,75						100	min. 19,5		
ca. 42	8,2	740-750					350	7,9-8,1		
2a	4,0	76 -79					410-470	2,0		
	925	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
700	52,5-53,5 (51,0-55,0)	740-750*	-	-		100	100,0-110,0 (97,0-113,0) = 15,2-15,7 mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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E22

E22

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 5,7 p

4. Edition

En

PES 6 A 80 D 410 RS 2085
Komb.-Nr. 0 400 876 211

RSV 350-1400 A 5 B 716 DL

superseded 10.84
company: Daimler-Benz
engine: OM 352
93 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	8,3-8,4	5,7-5,8	0,2(0,35)			
350	5,4-5,6	0,9-1,5	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	lose	350	5,5	1400	8,3-8,4
	x = 6,0						100	min.19,0	500	9,1-9,2
ca. 70	7,3	1440-1450					350	5,4-5,6	1000	8,5-8,8
2a	4,0	1495-1515					500-560	= 2,0		
	1650	0,7-1,7						**		

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5	6	7	8	9
1400	56,5-57,5 (55,0-59,0)	1440-1450*	1000	54,0-56,0 (52,5-57,5) 52,5-54,5 (51,0-56,0)		100	78,0-88,0 (75,0-91,0)	-	-
			800						

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 12

1. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 400-1200 A0B 2189 L
Komb.-Nr. 9 400 085 234

supersedes:
Daimler-Benz
company
OM 352
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,0+0,1	6,2-6,3	0,3 (0,5)			
400	7,1-7,2	1,0-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	400	6,7	1200	10,0-10,1
	x = 3,0						100	min.19,0	550	10,0-10,2
ca. 49	9,0	1240-1250					400	7,1-7,3	450	11,6-11,8
2a	4,0	1295-1325					480-540	2,0		
	1400	0,3-1,7					700	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	61,5-62,5 (59,5-64,5)	1240-1250*	-	-	-	100	14,2-14,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 11

1. Edition

En

PES 6 A 90 D 410 RS 2293 W RQV 300-1425 AB 740 L
Komb.-Nr. 0 400 846 336

supersedes
company Daimler-Benz
OM 352
engine: 115 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,9+0,1	7,2-7,3	0,3(0,45)			
300	7,5-7,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	250	0,5-0,7
ca. 61	9,9	1455-1465					300	7,5-7,7	640	3,2-3,6
	4,0	1560-1590							1030	5,6-5,8
	1700	0-1,0				370-520			1425	8,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	71,5-72,5 (69,5-74,5)	1455-1465*	-	-	100	71,0-81,0 (68,0-84,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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F1

F1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 TAE 4,7 a

1. Edition

En

PES 6 A 80 D 410 RS 2405 X

RSV 300-1400 A 2 B 1106 DL

supersedes - Tata

Komb.-Nr. 9 400 030 311

company
engine 692 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2, 15-2, 25
(2, 10-2, 30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,0	3,8 - 4,3	0,3			
200	9,0	1,7 - 2,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	300	7,8	600	Test specification on request!
	x =						120	19,0-21,0		
ca. 55	7,5	1460-1470					300	7,6-8,0		
2a	5,5	1480-1510					630-690	= 2,0		
	1700	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note: changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	41,0 - 42,0 (39,5 - 43,5)	1460-1470*		600	33,0-37,0 (32,0-38,0)	-	-	-	-
				900	36,0-40,0 (35,0-41,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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F2

F2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 BAO 13,8 b

1. Edition

En

Testoil-ISO 4113

PE 12 A 90 D 521 RS 2513 RSV 325 - 1500 A 5 B 642 DR

Komb.-Nr. 0 400 680 001

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° $\pm 0,5^\circ$
($\pm 0,75^\circ$)

supersedes

company Baudouin

engine DF 12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Mark start-of-delivery mark of cyl. 1 at edge 24° from pointer onto timing device.

Port closing at prestroke $\frac{2.15 - 2.25}{(2.10 - 2.30)}$

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1480	14,3 $\pm 0,1$	8,9 - 9,0	0,3(0,45)			
325	8,6 - 8,8	1,1 - 1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 = 0,3-1,0		-	-	-	ca. 20	325	8,2	1480	14,3-14,4
	x = 4,25						100	min. 19,0	300	15,1-15,3
ca. 64	13,3	1520-1530					325	9,6-8,8		
	4,0	1580-1610					450-510	= 2,0		
2a	1700	0,3-1,7					600	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .) rev/min				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1480	89,0 - 90,0 (87,0 - 92,0)	1520-1530	-	-	-	-	325	8,7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 1

1. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 2 C 707-2 L

supersedes

company KHD

Komb.-Nr. 0 400 864 062

engine BF 4 L 913
67 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65) mm (from BDC; RW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,7+0,1	8,2 - 8,3	0,3 (0,45)			
325	8,1-8,3	1,0 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 0,7	-	-	-	ca. 20	325	7,7	1000	12,7-12,8
		X = 4,25					100	min. 19,5	500	13,7-13,8
							325	8,1-8,3	800	13,3-13,5
							655 - 715 = 2,0		900	12,9-13,1
ca. 43	11,7	1040-1050								
(2a)	4,0	1175-1205								
	1340	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1000	0,7 bar 81,5 - 82,5 (79,5 - 84,5)	1040-1050	LDA 800	0,7 bar 86,5 - 88,5 (84,0 - 91,0)	100	115,0-125,0 (112,0-128,0)	-	-	
			LDA 500	0 bar 61,5 - 63,5 (59,5 - 65,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 4 A..RS 2638 +RSV..A 2 C 707-2L	0,70	0 0,45 0,29	13,7 - 13,8 12,1 - 12,2 13,3 - 13,4 12,5 - 12,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 4,1 d

1. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1400 A 8 C 707-3 L

supersedes -

company KHD

Komb.-Nr. 0 400 864 063

engine BF 4 L 913

78 kW/2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 250	12,7-0,1	8,3 - 8,4	0,3 (0,45)			
325	8,4-8,6	0,8 - 1,4	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 0,7	-	-	-	ca. 16	325	8,0	1250	12,7-12,8
	x = 4,0						325	8,4-8,6	500	13,7-13,8
ca. 54	11,4	1290-1300					610 - 670 = 2,0		850	13,2-13,4
2a	4,0	1375-1405							950	13,0-13,2
	1540	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min				Idle		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	mm 10
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*	LDA 850	0,7 bar 84,5 - 86,5 (82,0 - 89,0)	100	115,0-125,0 (112,0-128,0) =18,4-18,8 mm RW	-	-	-
			LDA 500	0 bar 59,5 - 61,5 (57,5 - 63,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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F6

F6

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 4 A..RS 2638 +RSV..A8C 707-3L	0,70	0 0,39 0,25	13,7 - 13,8 12,3 - 12,4 13,5 - 13,6 12,8 - 13,0

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a 1

1. Edition

En

PES 4 A 95 D 320 RS 2654
Komb.-Nr. 0 400 874 236
1-2-4-3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

RSV 325-1050 A 2 C 2178 R

supersedes -
company Valmet
engine 411 DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference between
control-rod travel 9 mm and control-
rod travel max. = $4,5-5,5^\circ$

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
($2,45-2,65$) mm (from BDÇ) RW = 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,0+0,1	8,3-8,5	0,35(0,6)			
325	5,9-6,1	1,8-2,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 25	325	5,5	1050	10,0-10,1
	x = 5,0								500	11,0-11,1
							325	5,9-6,1	860	10,4-10,6
							430-490	= 2,0		
ca. 47	9,0	1090-1100								
2a	4,0	1140-1170								
	1305	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	83,0-85,0 (81,0-87,0)	1090-1100*		500	84,0-87,0 (81,5-89,5)	100	190,0-200,0 - (187,0-203,0) =19,5-21,0		-
				750	88,0-90,0 (85,5-92,5)	325	mm RW 18,0-24,0 (15,5-26,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

7.85

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Testoil ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a 1

1. Edition

En

PES 3 A 95 D 320 RS 2655
Komb.-Nr. 0 400 873 032
1-2-3 je 120° ± 0,5° (± 0,75°)

RSV 325-1150 A 2 C 2178-1 R

supersedes -
company Valmet
engine J11 D 56

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference between
control-rod travel 9 mm and control-
rod travel max. = 4,5-5,5°

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDÇ) RW = 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	10,4+0,1	8,9-9,1	0,35(0,6)			
325	6,5-6,7	2,2-2,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 27	325	6,1	1130	10,4-10,5
	x = 5,0						325	6,5-6,7	500	11,8-11,9
							460-520	= 2,0	915	11,2-11,4
ca. 54	9,4	1170-1190								
2a	4,0	1235-1265								
	1405	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1130	88,5-90,5 (86,5-92,5)	1170-1190*	500	94,5-96,5 (92,0-99,0)	100	190,0-200,0 (187,0-203,0) = 19,5-21,0 mm RW	-	-	
					325	22,0-28,0 (19,5-30,5)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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F9

F9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 4,0 b

1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AOC 2006-1 L
Komb.-Nr. 0 400 874 240
Values apply to fuel-injection test tubing
1 680 750 015

supersedes
company Daimler-Benz
engine OM 364
66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 mm (from BDC)
(2,20-2,40)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,4+0,1	6,3-6,4	0,3(0,45)			
300	7,8-8,0	0,6-1,0	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	300	7,9	1380	10,4-10,5
	x = 4,5						100	min.19,5		
ca. 66	9,4	1430-1440					300	7,8-8,0	500	11,8-11,9
	4,0	1480-1510					420-480=2,0		900	11,1-11,3
2a	1575	0,3-1,7								

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0 a 1

2. Edition

En

PES 6 A 90 D 410 RS 2667 RQV 300-1400 AB 1201 L

Komb.-Nr. 0 400 846 535

Values apply to fuel-injection test tubing
1 680 750 015

supersedes 12.84

company: Daimler-Benz

engine: OM 366

100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35
(2,20-2,40) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,1+0,1	6,4-6,5	0,3(0,45)			
300	8,9-9,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca. 25	100	min. 10,5	300	0,8-1,3
ca. 63	10,1	1440-1450					300	8,9-9,1	500	2,3-2,8
	4,0	1545-1575							750	4,1-4,3
	1630	0-1,0				540-680			1500	8,5
						③a				

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500	51,0-54,0 (48,5-56,5)	100	78,0-88,0 (75,0-91,0)	1400	11,1+0,1	
			900	53,5-56,5 (51,0-59,0)		=16,4-17,0 mm RW	500	12,2+0,1	
							900	11,7+0,2	
							1100	11,4+0,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

Testoil-ISO 4113

F11

F11

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Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 SCL 7,4 c

1. Edition

En

PES 6 A 95 D 410 RS 2692

RSV 325-1100 A 1 C 2177 L

Komb.-Nr. 0 400 876 323

supersedes

company Schlüter

engine SDMT 112 W 6
118 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,65-2,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,6+0,1	10,4-10,6	0,35 (0,6)			
325	8,4-8,6	2,1-2,9	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 21	325	8,0	1100	11,6-11,7
	X = 3,5						100	min. 19,5	500	12,6-12,7
							325	8,4-8,6	870	12,0-12,2
							535-595	= 2,0		
ca. 54	10,6	1140-1150								
②a	4,0	1200-1230								
	1370	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
LDA 1100	0,7 bar 104,0-106,0 (102,0-108,0)	1140-1150*	LDA 700	0,7 bar 108,5-111,5 (106,0-114,0)	100	180,0-190,0 - (177,0-193,0) =19,5-21,0 mm RW			-
			LDA 500	0 bar 74,0-76,0 (72,0-78,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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D. Adjustment Test for Manifold Pressure Compensator

SCL 7,4 c

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A.. RS 2692 +RSV..A 1 C 2177 L	0,70	0 0,26 0,13	12,6-12,7 11,0-11,1 11,8-11,9 11,5-11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test of hydraulic starting interlock:

at n = 550 min⁻¹ and 0.2 bar boost pressure.

Locking at 0,4 - 0,5 bar

Unlocking at 0,15-0,25 bar

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8 a 3

1. Edition

En

 PE 6 P 100 A 720 RS 15
 Komb.-Nr. 9 400 087 259

RQV 300-1100 PA 466

supersedes

company Daimler-Benz

engine: OM 355

154 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1+0,1	10,1-10,3	0,35(0,6)			
300	7,8-8,0	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 14	100	min. 7,5	250	0,5-1,4
ca. 69	11,1 4,0 1300	1140-1150 1210-1240 0-1,0					300	5,9-6,1	400	2,2-2,7
							530-590	= 2,0	800	5,5-6,0
									1100	8,9

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	101,0-103,0 (99,0-105,0)	1140-1150*	450	86,0-89,0 (83,5-91,5) 90,5-93,5 (88,0-96,0)	100	140,0-160,0 = 18,1-18,5 mm RW	1100	12,1+0,1
			700				900	12,1+0,1
							700	12,3+0,2
							450	12,7+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.35

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 c

4. Edition

En

PE 6 P 120 A 720 RS 214 RQV 425-1050 PA 438 R
Komb.-Nr. 0 401 846 409
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 015

supersedes 81

company UNIC-IVECO

engine: 8215.22.520

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	10,1+0,1	16,7-16,9	0,5(0,9)			
425	6,2-6,4	2,5-3,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 12	100	min. 7,8	425	1,2-1,4
ca. 58	9,1	1090-1100					425	6,2-6,4	600	3,8-4,6
	4,0	1190-1220							900	6,4-6,7
	1300	0-1,0				425-525			1050	7,6-7,8
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1050	167,0-169,0 (164,0-172,0)	1090-1100*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

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F15

F45

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 c 2

1. Edition

En

PE 6 P 120 A 720 RS 214

RQV 425-1100 PA 438 R

Komb.-Nr. 0 401 846 434

supersedes

company: UNIC-IVECO

engine: 8215.02.542

165,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,95-2,15}{(2,00-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,2+0,1	19,4-19,8	0,5(0,9)			
425	6,0-6,2	2,4-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 12	100 425	min. 7,6 6,0-6,2	425 800 1100	1,3-1,4 4,1-4,5 7,5
ca. 58	9,2 4,0 1350	1140-1150 1195-1225 0 - 1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	194,0-198,0 (191,0-201,0)	1140-1150*			100 425	19-21 mm RW 24,0-28,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

F16

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 10,0 a

1. Edition

En

PE 5 P 100 A 720 RS 265 RSV 350-1000 P1/14
Komb.-Nr. 9 400 087 269
1-2-4-5-3 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company Daimler-Benz
engine OM 355-5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
(2,75-2,95) mm (from BDC; RW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,4+0,1	10,7 - 10,9	0,35 (0,6)			
350	7,4-7,6	1,4 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	5	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	350	7,0	-	-
	X =						100	min. 19,0		
ca. 53	11,4	1040-1050					350	7,4-7,6		
②a	4,0	1095-1125					520 - 580	= 2,0		
	100	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	107,0-109,0 (105,0-111,0)	1040-1050*	500	89,0 - 93,0 (87,5 - 95,5)	100	140,0-160,0 = 18,2-18,5 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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7.85

F17

F17

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 d 1

2. Edition

En

PE 6 P 110 A 320 RS 272 RQV 250-1250 PA 235-2 R
Komb.-Nr.0 401 846 298

superseded 7.84
company: Volvo
engine: TD 70 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC), RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,7-8,8	9,2-9,4	0,4(0,8)			2,5 [±] 0,1
250	6,7-6,9	2,2-2,6	0,3(0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 12	100	min. 8,2	200	0,3-0,8
ca. 44	7,7	1290-1300					250	6,7-6,9	550	2,6-3,2
	4,0	1340-1370					350-410	=2,0	900	4,6-5,0
	1450	0-1,0							250	7,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 92,0-94,0 (89,0-97,0)	1290-1300*	LDA 700	0 bar 70,5-73,5 (67,5-76,5)	100	140,0-180,0 (136,0-184,0) =20,0-21,0 mm RW	-	-
					250	22,0-26,0 (19,5-28,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Q6.85

F18

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 272 +RQV.. PA 235-2 R	0,70	0 0,31 0,23	8,7-8,8 7,8-7,9 8,5-8,6 7,9-8,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 f 1

1. Edition

En

PE 6 P 110 A 320 RS 281/Z
Komb.-Nr. 0 401 876 199/Z

RSV 250-1100 P 5/390 R

supersedes...

company DAF

engine DKTD 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testo-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-14,0	0,4 (0,75)			
250	6,6-6,8	0,7-1,1	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	250	6,2	400	12,2-12,3
	x =						250	6,6-6,8	300	12,4-12,9
ca. 51	11,0	1140-1150					350-410	= 2,0		
2a	4,0	1210-1240								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 850	0,7 bar 136,5-139,5 (134,0-142,0)	1140-1150*	LDA 600	0 bar 127,5-130,5 (124,0-134,0)	100	245,0-285,0 RW = 19,5-21,0 mm	250	6,7	

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

F20

F20

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 f 1 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 281/Z + RSV..P 5/390 R	0,70	0,30 0	12,0-12,1 11,8-11,9 11,4-11,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 f 2

1. Edition

En

PE 6 P 110 A 320 RS 281/Z

RQ 250/1100 PA 196 R

Komb.-Nr. 0 401 846 342/Z

supersedes -

company: DAF

engine: DKTD 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7 - 14,0	0,4(0,75)			
600	11,4+0,1	12,8 - 13,1	-			
250	6,6-6,8	0,7 - 1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,0 4,0 1350	1145-1160 1220-1250 max. 1,0	250	6,7	100 250 460-500	min. 7,8 6,6-6,8 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 136,5 - 139,5 (134,0 - 142,0)	-	LDA 600	0 bar 127,5 - 130,5 (124,0 - 133,0)	100	245,0 - 285,0 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 f 2

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 281/Z + RQ .. PA 196 R	0,70	0,30 0	12,0 - 12,1 11,8 - 11,9 11,4 - 11,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 6

1. Edition

En

2 8 P 130 A 920/5 RS 293-1 RSUV 300-750 P 9 A 350

1-6 - 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

KHD

company

BA 16 M 816

eng.

Romb.-Nr. 0 401 878 116

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,5+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
300	6,1-6,3	2,0-2,6 (1,7-2,9)	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800 X = 4,0	0,3-1,0	-	-	-	ca. 25	300	5,7	750	13,5-13,6
							300	6,1-6,3	280	14,7-15,3
							320-380	= 2,0	450	13,5-13,6
ca. 62	12,5 4,0	790-800 810-840								
2a	975	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Test specifications on request!		790-800 *	-	-	-	-	-	-	-
Pump operates in tandem.									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.85

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F24

F24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 7

1. Edition

En

PE 8 P 120 A 920/5 RS 293-1 RSUV 300-1000 P 0 A 352

1- 6- 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° + 0,5° (+ 0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes KHD

company BA 16 M 816

engine

Komb.-Nr. 0 401 878 115

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,5+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
300	6,1-6,3	2,0-2,6 (1,7-2,9)	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.22	300	5,7	1000	13,5-13,6
		x = 2,0					300	6,1-6,3	280	14,7-15,3
							325-385	=2,0	450	13,5-13,6
ca.66	12,5	1040-1050								
2a	4,0	1060-1090								
	1225	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
		1040-1050*	-	-	-	-	-	-	-
Test specifications on request!									
Pump operates in tandem.									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.85

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G1

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 e

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-600 P 8 A 322 R
1- 6- 4- 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company KHD
BA 16 M 816
engine
Komb.-Nr. 0 401 878 118

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDCRW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,5+0,1	35,8-36,1 (35,4-36,5)	0,6 (1,0)			
300	6,1-6,3	2,0-2,6 (1,7-2,9)	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800 X = 4,0	0,3-1,0	-	-	-	ca. 30	300	5,7	600	13,5-13,6
							300	6,1-6,3	220	14,7-15,3
							310-370	≈ 2,0	350	13,5-13,6
ca. 65	12,5 4,0	640-650 655-685								
2a	820	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Test specifications on request!		640-650 *	-	-	-	-	-	-	-
Pump operates in tandem.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 e 1

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-750 P 9 A 322 R

1- 6- 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes

KHD

company

BA 16 M 816

engine

Komb.-Nr. 0 401 878 120

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,5+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
300	6,1-6,3	2,0-2,6 (1,7-2,9)	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min Control rod travel 10 11	
loose	Control rod travel mm 2	Control rod travel mm rev/min 3	-	-	-	ca.-21	300	6,2	750	13,5-13,6
	X = 4,0	0,3-1,0					300	6,1-6,3	280	14,7-15,3
ca.54	12,5	790-800					300-360 = 2,0		450	13,5-13,6
	4,0	805-835								
2a	970	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
Test specifications on request!		790-800 *		-	-	-	-	-	-
Pump operates in tandem.									

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 e 2

1. Edition

En

PE 8 P 130 A 920/5 RS 293-2 RSUV 300-1000 POA 348

1- 6- 4- 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -

company KHD

BA 16 M 816

engine Komb.-Nr. 0 401 878 119

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,5+0,1	35,8-36,1 (35,5-36,5)	0,6 (1,0)			
300	6,1-6,3	2,0-2,6 (1,7-2,9)	1,0 (1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 18	300	5,9	1000	13,5-13,6
	X = 2,0						300	6,3-6,5	280	14,7-15,3
							325-385	= 2,0	450	13,5-13,6
ca. 66	12,5	1040-1050								
	4,0	1065-1095								
2a	1230	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Test specifications on request!		1040-1050*	-	-	-	-	-	-	-
Pump operates in tandem.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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G4

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Testoil ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 10,1 a 1

2. Edition

PES 6 P 110 A 720 RS 370 RSV 400 - 1050 P 0/496
Komb.-Nr. 9 400 231 107

supersedes 10.83
company John Deere
6619 A
engine 205 kW

Use overflow valve 1 457 413 010

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing cylinder 1 = 15°
after port closing.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85 (2,70-2,90) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,3+0,1	17,4-17,6	0,4(0,75)			
400	5,9-6,1	1,3 - 1,9	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 24	400	5,5	1050	12,3-12,4
							100	min. 19,0	700	13,4-13,8
							400	5,9-6,1		
ca. 44	11,3	1090-1100					550-610	= 2,0		
2a	4,0	1155-1185					650	max. 1,0		
	1280	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
LDA 1050	0,9 bar 174,0-176,0 (171,0-179,0)	1090-1100*	LDA 700	0,9 bar 198,0-204,0 (195,0-207,0)	100	170,0-200,0	400	6,0	
			LDA 500	0 bar 125,0-131,0 (123,0-133,0)	High idle speed 1150	55,0-65,0 (53,0-67,0)			

Checking values in brackets

* 1 mm less control rod travel than col 2

06.85

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D. Adjustment Test for Manifold Pressure Compensator

DEE 10,1 a 1-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6P..RS 370 + RSV..PO/496	0,9	0 0,53 0,24	13,6-13,7 10,5-10,6 12,9-13,0 11,1-11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8 o

1. Edition

En

PE 6 P 110 A 720 RS 371 RQ 300/1050 PA 419-1

Komb.-Nr. 9 400 087 318

supersedes

company: Daimler-Benz

engine: OM 355 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,5+0,1	16,1-16,3	0,4(0,75)			
300	5,9-6,1	1,6-2,1	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	15,6-16,4	600	16,0	10,5 4,0 1270	1095-1110 1150-1180 0-1,0	300	6,0	100 300 440-500=2,0	min.7,6 5,9-6,1	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1095-1110 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1050	161,0-163,0 (159,0-165,0)	500	500	152,0-156,0 (149,0-159,0)	100	144,0-160,0 =12,7-13,7 mm RW			

Checking values in brackets

8.85

BOSCH

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Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps ②

and Governors

WPP 001/4 DAF 11,6 i 2

3. Edition

En

PE 6 P 110 A 320 RS 372/W

RQ 250/1100 PA 417 R

Komb.-Nr. 0 401 846 411/W

supersedes -

DAF

company:

DKT 1160 206 kW

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDQ) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,1	15,3 - 15,6	0,4(0,75)			
600	11,4-0,1	12,8 - 13,1	-			
250	7,0-7,2	1,0 - 1,4	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,8	1145-1160 4,0 1230-1260 1400 max. 1,0	250	7,1	100	min. 8,0 250 7,0-7,2 470-510 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 152,5 - 155,5 (150,0 - 158,0)	-	LDA 600	0 bar 127,5 - 130,5 (124,5 - 134,5)	100	245,0 - 285,0 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 2

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P110..RS372/W + RQ..PA 417 R	0,70	0,35 0	12,8 - 12,9 12,5 - 12,6 11,4 - 11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 372/X
Komb.-Nr. 0 401 846 411/X

RQ 250/1100 PA 417 R

supersedes 11.81
company: DAF
engine: DK 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,6+0,1	10,6-10,8	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	9,6 4,0 1350	1160-1175 1220-1250 max. 1,0	250	6,7	100 250 460-500 = 2,0	min. 7,8 6,6-6,8	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1160-1175 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
850	105,5-107,5 (102,5-110,5)	-		-	-	100	245,0-285,0 bis RW = 19,5- 21,0 mm

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 ± 4

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar		
PE 6 P ..RS 372/X with ..PA 417 R	0,7	0,35		10,6 - 10,7 10,4 - 10,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 i 5

2. Edition

En

PE 6 P 110 A 320 RS 372/Y
Komb.-Nr. 0 401 846 411/Y

RQ 250/1100 PA 417 R

supersedes 11.81

company: DAF

engine: DKA

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,1+0,1	11,5-11,7	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	10,1 4,0 1350	1150-1165 1220-1250 max. 1,0	250	6,7	100 250 460-500	min. 7,8 6,6-6,8 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1150-1165 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
850	114,5-116,5 (111,5-119,5)	-		-	-	100	245,0-285,0 bei RW = 19,5- 21,5 mm

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 ± 5 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 372/Y + RQ..PA 417 R	0,70	0,35	11,6 - 11,8 11,4 - 11,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 i 14

1. Edition

En

PE 6 P 110 A 320 RS 372/Z

RQ 250/1100 PA 417 R

Komb.-Nr. 0 401 846 411/Z

supersedes -

company: DAF

engine: DKT 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $\frac{2,8-2,9}{(2,75-2,95)}$

mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	14,3 - 14,6	0,4 (0,75)			
600	11,4+0,1	12,8 - 13,1	-			
250	6,6-6,8	0,7 - 1,1	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
700	15,6-16,4	700	16,0	11,3 4,0 1350 max. 1,0	1145-1160 1220-1250	250	6,7	min. 7,8 250 6,6-6,8 460-500 =2,0	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1145 - 1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	5	6	7
LDA 850	0,7 bar 142,5 - 145,5 (140,0 - 148,0)	-	LDA 600	0 bar 127,5 - 130,5 (124,0 - 134,0)	100	245 - 285 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 14

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372/Z + RQ .. PA 417 R	0,70	0,30 0,26 0	12,3 - 12,4 12,0 - 12,1 11,6 - 11,8 11,4 - 11,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 110 A 320 RS 372-1

RQ 250/1100 PA 417-1

Komb.-Nr. 0 401 846 463

RQ 250/1100 PA 417

supersedes 5.84

company: DAF

engine: DKTD 1160

191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,8-2,9}
 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-14,0	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,0 4,0 1350	1145-1160 1220-1250 0 - 1,0	250	6,7	100 250 460-500	min. 7,8 6,6-6,8 = 2,0	850 1100	12,0-12,1 11,9-12,1

 Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 136,5-139,5 (134,0-142,0)	-		LDA 600	0 bar 127,5-130,5 (125,0-133,0)	100	245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW

Checking values in brackets

06.85

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure increasing

DAF 11,6 i 8 - 2 -

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS372-1 +..PA417-1 oder ..PA 417	0,70	0 0,30 0,28	12,0-12,1 11,5-11,6 11,8-11,9 11,5-11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 i 7

2. Edition

En

PE 6 P120 A 320 RS 372-1/Y RQ 250/1100 PA 417 R
Komb.-Nr. 0 401 846 473/Y

supersedes 10.82

company DAF

engine: DKX 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,4+0,1	20,5-20,9	0,5 (0,90)			
600	10,0-10,1	13,9-14,3	-			
250	6,2-6,4	1,1-1,5	0,8 (0,95)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	10,4 4,0 1350	1135-1150 1200-1230 max. 1,0	250	6,3	100 250 440-480 = 2,0	min. 7,4 6,2-6,4	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 850	0,7 bar 205,0-209,0 (202,0-212,0)	-	LDA 600	0 bar 139,0-143,0 (135,0-147,0)	100	320,0-360,0 RW = 19,5 - 21,0 mm

Checking values in brackets

5.85

Testoil-ISO 4113

G18

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G18

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 i 7

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6P..RS 372/Y + RQ..PA 417 R	0,70	0,37 0,33 0	11,4-11,5 11,0-11,1 10,4-10,8 10,0-10,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 1 1

En

2. Edition

PE 6 P 100 A 320 RS 384/Y

RQ 225/1000 PA 442 R

Komb.-Nr. 0 401 846 410/Y

supersedes 8.80

company DAF

engine: DKDL 1160 V

Port closing difference
= 0,9-12,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
625	11,2+0,1	11,0-11,3	0,3(0,60)			
225	7,4-7,6	1,5-1,7	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,4	1050-1065	225	7,5	100	min.8,0		
				4,0	1085-1115			225	7,4-7,6	625	11,2-11,3
				1200	max. 1,0			330-370	=2,0	1000	10,4-10,6

Torque-control travel on flyweight assembly dimension a = 0,40 mm Speed regulation: At 1050-1065 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
625	110,0-113,0 (108,5-114,5)	625	1000	100,0-104,0 (98,0-106,0)	100	170,0-210,0 RW = 19,5-21,0 mm

Checking values in brackets

05.85

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 2

2. Edition

En

PE 6 P 100 A 320 RS 384/Y
Komb.-Nr. 0 401 846 438/Y

RQ 300/1100 PA 517

supersedes 8.80

company: DAF

engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,20-3,30}{(3,15-3,35)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,0-11,3	0,3 (0,60)			
1050	10,8+0,2	10,7-11,2	-			
225	7,2-7,4	1,0-1,4	0,3 (0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 max. 1,0	225	7,3	100 225 325-365=2,0	min. 7,5 7,2-7,4	600 800 855 1050	11,5-11,6 11,2-11,4 10,9-11,2 10,8-11,0

Torque-control travel
on flyweight assembly dimension a = 0,25 mm

Speed regulation: At 1140-1155 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
600	110,0-113,0 (108,5-114,5)	600	1050	106,5-111,5 (105,0-113,0)	100	195,0-235,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

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621

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 RS 407-1 RQ 275/1000 PA 641-1
Komb.-Nr. 0 401 846 474

supersedes 5.84
company DAF
engine: DKCL 1160
155 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) = RW 9,0-12,0 mm
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	13,9-14,1	0,4(0,75)			
275	7,0-7,2	0,9 -1,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,1 4,0 1300	1045-1060 1105-1135 0 - 1,0	275	7,1	100 275 335-375	min. 8,6 7,0-7,2 = 2,5	600 1000 740 875	12,5+0,1 11,1+0,2 12,1+0,2 11,4+0,3

Torque-control travel on flyweight assembly dimension a = 0,6 mm Speed regulation: At 1045-1060 min⁻¹ 1 mm: less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 600	0,7 bar 139,0-142,0 (136,5-144,5)	-	LDA 1000	0,7 bar 114,5-119,5 (111,5-122,5)	100	245,0-285,0 (241,0-289,0) = 19,5-21,0 mm RW
			LDA 600	0 bar 136,5-139,5 (134,0-142,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 n 4

- 2-

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 407-1 + RQ.. PA 641-1	0,50	0 0,275	12,3-12,4 12,1-12,3 12,2-12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ALO 13,8 a

2. Edition

En

PES 6 P 120 A 320 RS 410 ROV 400-1050 PA 496 K
Komb.-Nr. 0 402 046 201

supersedes 3.84
company: Allis Chalmers
engine: 613.8 I
355 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	23,3-23,5	0,4			
400	5,7-5,9	2,4-3,0	0,4			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 61	1050	15,2-17,8	-	-	-	ca. 17,5	100	min. 7,5	-	-
ca. 59	10,7 4,0 1270	1090-1100 1205-1235 0 - 1,7					400 465-525 600	5,5-5,7 =2,0 max. 1,0		
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1050	233,0-235,0	1090-1100*	800	212,0-216,0	100	140,0-180,0	1050 800	11,7 11,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

Testoil-ISO 4113

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 3

2. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-5
Komb.-Nr. 0 402 046 300

superseded 3.84

company RVI

engine: MIDR 062045

191 kW

Calibrating nozzle-and holder assembly 0 688 901 019

Test-pressure line 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) Port closing mark $10,5^\circ$ after
(2,75-2,95) port closing cylinder 1

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,7-9,8	16,4 - 16,6	0,5 (0,9)			
275	4,9-5,1	1,7 - 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2 - 17,8	-	-	-	ca. 9	200	min. 5,3	250	1,0-1,2
ca. 64	8,7	1155-1165					275	3,6-3,8	450	3,4-3,8
	4,0	1215-1245							850	6,1-6,3
	1350	0 - 1,0				285-400 ③a			1100	8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④	Starting fuel delivery Idle switching point rev/min ⑥	Torque-control ⑤ travel Control rod travel mm rev/min ⑧
1	cm ³ /1000 strokes 2	3	5	6	9
LDA 1100	0,7 bar 164,0-166,0 (161,0-169,0)	1155-1165 *	LDA 700 0,7 bar 152,0-158,0 (149,0-161,0) LDA 500 0 bar 100,0-102,0 (97,0-105,0)	100 140,0-160,0 (136,0-164,0) 275 3,6-3,8mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a 3

-2-

Test at $n = 500$ rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6P RS 419 + RQV.. PA 495-5	0,70	0 0,23 0,20	9,7-9,8 8,5-8,6 9,3-9,4 8,7-8,9

Notes:

(1) when $n =$ rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 9,5a1

2. Edition

En

Testoil-ISO 4113

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Komb.-Nr. 0 402 045 021

superse 81

company Daimler-Benz

engine OM 409

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Batches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC) cyl. 5
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,8+0,1	12,20-12,40	0,4(0,8)			
300	7,0-7,2	1,00- 1,60	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max. ca. 64	1140 9,8 4,0 1300	15,2-17,8 1140-1150 1175-1205 0 - 1	-	-	-	ca. 34	100 300	min.8,5 7,0-7,2	250 550 800 1100	1,0-1,3 4,0-4,3 5,3-5,7 7,3
						320-435				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1100	122,0-124,0 (119,0-127,0)	1140-1150 *	-	-	100	140,0-160,0 (136,0-164,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H3

H3

①

Test Specifications Fuel Injection Pumps and Governors

① NPP 001/4 CAT 7,0 a
2. Edition

En

PES 4 P 80 A 720 LS 440 RQV 375-1100 PA 610

Komb.-Nr. 9 400 087 277

supersedes 84

company Caterpillar

engine 3304 NA

100 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,95-2,05$
($1,90-2,10$) mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	11,2-11,3	0,2(0,35)			
375	6,7-6,9	1,0-1,7	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 14	250	min. 10,0	1100	8,3
ca. 67	12,1 4,0 1350	1130-1140 1230-1260 0 - 1,0				350-450	375	5,9-6,1		
						③a	480-540	= 2,0		

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	112,0-113,0 (110,5-114,5)	1130-1140 *	700	107,5-110,5 (106,5-111,5)	100	152,0-172,0 = 17,6-18,6 mm RW	-	-
					375	5,9-6,1 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

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H4

H4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 d 1

2. Edition

En

PES 6 P 120 A 720 LS 457

RQV 250-1050 PA 672

Komb.-Nr. 0 402 046 280

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.84

company: MAN

engine: D 2566 MLE
220 kW/2100 min⁻¹

Schiff

MAN-Nr. 2-7322

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1
(2,95-3,15)

mm (from BDC)

7yl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,3+0,1	17,2 - 17,4	0,5 (0,9)			
250	6,0-6,2	1,5 - 2,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 10	100	min. 7,6	350	2,0-2,5
ca. 62	9,3 4,0 1350	1090-1100 1190-1220 0-1,0					250 390-450	6,0-6,2 =2,0	800 1050	6,4-6,6 8,0-8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	172,0-174,0 (169,0-177,0)	1090-1100 *	-	-	100	285,0-305,0 (281,0-309,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

05.85

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 10,8 a 1

2. Edition

En

PE 6 P 120 A 320 RS 468 RSUV 300-1150 PO A 324 DR

1- 6- 3 - 2- 5 - 4

0-90-120-210-240-330°+0,5°(±0,75°)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 7.84

company MWM

D-TBD 234 V6

engine Komb.-Nr. 0 401 876 271

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,4-9,5	14,3-14,7	0,5(0,9)			
300	6,2-6,4	2,8-3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	300	5,8	-	-
		x= 4,0					300	6,2-6,4		
							400-460	=2,0		
ca.66	8,4	1190-1200								
2a	4,0	1230-1260								
	1390	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1150	143,0-147,0 (140,0-150,0)	1190-1200*	-	-	100	260,0-290,0 =15,8-16,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 8,0 k

7. Edition

En

PE 6 P 110 A 720 RS 3034 RSV 350-1200 P 1/462 R
Komb.-Nr. 0 401 876 715 See page 2

supersedes 3.84
company: Scania
engine: DS 8 05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke (3,25-3,45) mm (from BD_{PR}) = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8±0,1	12,1-12,3	0,5(0,7)			2,5 ± 0,1 (2,2 - 2,9)
350	5,9-6,1	-	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 29	350	5,5	-	-
	x = 4,0						350	5,9-6,1		
ca. 71	11,8	1240-1250					500-560=2,0			
2a	4,0	1310-1340								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
700	121,0-123,0 (119,0-125,0)	1240-1250*	1200	126,5-131,5 (124,0-134,0)	100	190,0-240,0 =20,0- 21,0 mm RW	350	5,5	

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22. 8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i

6. Edition

En

PE 6 P 110 A 720 RS 3034

RQV 200-1200 PA 554

supersede 3.84

Komb.-Nr. 0 401 846 733

company Scania

engine: DS 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4
(3,25-3,45)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,8+0,1	12,1-12,3	0,5(0,7)			2,5 ⁺ 0,1
225	5,9-6,1	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1220	15,2-17,8	-	-	-	ca.16	100	min.7,4	150	0,5-0,8
ca. 64	11,8 4,0 1500	1240-1250 1385-1415 0-1,0					225	5,9-6,1	500	3,8-4,5
							410-470 = 2,0		850	5,9-6,1
									1200	8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 121,0-123,0 (119,0-125,0)	1240-1250*	LDA 1200	0,9 bar 126,5-131,5 (124,0-134,0)	100	190,0-240,0 =20,0-21,0 mm RW	-	-
			LDA 500	0 bar 85,0-89,0 (83,0-91,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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H9

H9

D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 i

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P .. RS 3034 +RQV .. PA 554	0,90	0 0,33 0,22	12,8 - 12,9 11,6 - 11,7 12,5 - 12,6 11,7 - 11,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22. 8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 5

2. Edition

En

PE 6 P 110 A 320 RS 3108 RQV 325-1100 PA 232

Komb.-Nr. 0 401 846 753

superseded 8.84
company: Volvo-BM
TD 100 G
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	14,8-15,0	0,4(0,8)			
325	3,9-4,1	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 11	100	min. 6,0	275	2-1,4
ca. 44	10,5	1140-1150					325	3,9-4,1	550	3,3-3,8
	4,0	1220-1250					340-400	2,0	825	5,3-5,6
	1350	0-1,0							100	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation Intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 148,0-150,0 (145,0-153,0)	1140-1150*	LDA 700	0 bar 114,0-118,0 (111,0-121,0)	100	170,0-200,0 =20,0-21,0 mm RW	-	-
					325	16,0-20,0 (13,5-22,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

06.85

Testoil-ISO 4113

BOSCH

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H 11

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 5

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3108 +RQV..PA 232	0,75	0 0,46 0,34	11,6-11,7 9,7-9,8 11,1-11,2 10,3-10,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 q 1

1. Edition

En

PES 6 P 120 A 820 LS 3112-10 RSV 350-1100 POA 500

Werte gelten nur für

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company Daimler-Benz
OM407A

engine 206 kW (280 PS)

Komb.-Nr. 0 402 076 718

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC)
 $(3,95-4,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,5+0,1	17,5 - 17,7	0,5 (0,9)			
350	4,7-4,9	1,6 - 2,2	0,8 (1,2)			
600	-	C, Sp. 4 u. 5	0,75(1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
loose	800	0,3-0,7	-	-	-	ca. 25	350	4,8	-	-
	x = 3,25						420-460	= 2,0		
ca. 48	10,5	1135-1145								
2a	4,0	1215-1245								
	1300	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to .) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 4a Idle stop Control rod travel mm 8 9	
LDA 1100	cm ³ /1000 strokes 2	1135-1145*		LDA 600	cm ³ /1000 strokes 5	100	150,0-170,0 (146,0-174,0)	-	-
	0,7 bar 175,0-177,0 (172,0-180,0)								
LDA 500				LDA 500					

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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Testoil-ISO 4113

H13

H13

D. Adjustment Test for Manifold Pressure Compensator

MB 11,4 q 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS3112-10 + RSV..POA500	0,70	0,40 0,50 0	11,8 - 11,9 10,7 - 10,9 11,6 - 11,7 10,5 - 10,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 12 P 130 A 520/6 RS 3114-1 RQ 425/1250 PA 697-1

Komb.-Nr. 0 401 830 706

1- 8- 5-10- 3 - 7 - 6 - 11- 2- 9- 4- 12

0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes-

company: SSCM

engine: V 12 X

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,4-0,1	23,9-24,2	0,6(1,0)			
425	6,3-6,5	2,7-3,3	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
900	12,7-14,3	900	13,5	10,4	1295-1310	425	6,4	100	min.7,9	1250	11,4+0,1
				4,0	1335-1365			425	6,3-6,5	625	13,8+0,3
	VH max. 46°			1450	0-1,0			465-505	= 2,0		

Torque-control travel

1,5

on flyweight assembly dimension a = mm

1295-1310 min⁻¹

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm
1	2	3		4	5	6	7
LDA 1000	0,9 bar 239,0-242,0 (235,5-245,5)	-		LDA 750	0 bar 174,0-177,0 (170,5-180,5)	-	-

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

SSC 31,8 b 1

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12..RS 3114-1 +RQ..PA 697-1	0,90	0 0,42 0,28	11,4-11,5 9,4-9,5 10,9-11,0 10,0-10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 GUS 18,0 c

1. Edition

En

PE 6 P 120 A 720 RS 3130 RSV 300-750 P 1/427-1
Komb.-Nr. 0 401 876 736
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company GuASCOR
engine F 180
220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDG) RW = 9,0-12,0 mm
(2,75-2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	15,0+0,1	25,8-26,0	0,5 (0,9)			
300	7,0-7,2	1,7-2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel min rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 15	300	7,1	-	-
	x = 2,25						300	7,0-7,2		
							400-450	= 2,0		
ca. 31	14,0	750-755								
2a	5,0	776-789								
	900	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
700	258,0-260,0 (255,0-263,0)	750-755*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 751

RQ 300/1100 PA 723

supersedes

company Daimler-Benz

engine: OM 427 H
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,3-4,4 \\ (4,25-4,45) \end{matrix}$ mm (from BDC) $RW = 9,0-12,0$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,1+0,1	14,0-14,2	0,4(0,8)			
300	7,1-7,3	1,4-2,0	0,45(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	19,2-20,8	550	20,0	10,2	1145-1160	300	7,2	100	min. 8,8	-	-
VH =	max. 46°			4,0	1190-1220			300	7,1-7,3		
				1300	0-1,5			360-400	= 2,0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
1100	140,0-142,0 (137,0-145,0)	-		600	117,0-121,0 (114,0-124,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 820 LS 3131
Komb.-Nr. 0 402 046 763

RQ 300/1100 PA 771

supersedes _

company: Daimler-Benz

engine: OM 427 H
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,3-4,4}
(4,25-4,45) mm (from BDC) cyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4-9,5	11,0-11,2	0,4(0,8)			
300	7,1-7,3	1,4-2,0	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	8,4 4,0 1300	1145-1160 1195-1225 0-1,5	300	7,2	100 300 360-400 = 2,0	min. 8,8 7,1-7,3 = 2,0	1100 500 950	9,4-9,5 10,2-10,4 9,7-9,9

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	110,0-112,0 (107,5-114,5)	-	500	96,0-100,0 (93,0-103,0)	100	63,0-83,0 (59,0-87,0) = 10,8-11,0 mm RW with TAS* mounted

* (TAS = temperature-dependent starting fuel delivery).

Checking values in brackets

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 r

1. Edition

En

PE 6 P 120 A 320 RS 3134 RQV 250-1100 PA 371/2 R
Komb.-Nr. 9 400 087 312
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Volvo
engine: TM 101 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,6-2,7}{(2,55-2,75)}$ mm (from BDC), RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	14,8+0,1	27,8-28,0	0,5(0,9)			
250	5,6-5,8	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	mm
1	2	3	3a	4	5	6	7	8	9	10	11	10	11
max.	1100	15,2-17,8		-	-	-	ca. 9	100	min.4,0	250	0,5-1,1		
ca. 49	13,8	1160-1170						250	2,1-2,3	500	2,4-3,1		
	4,0	1265-1295						230-290=2,0		800	4,6-5,1		
	1375	0-1,0								1100	7,5		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	rev/min
1	2	3	4	6	8
LDA 700	0,35 bar 278,0-280,0 (275,0-283,0)	1160-1170*	LDA 700 0 bar 259,0-261,0 (256,0-264,0)	100 240,0-260,0 =19,0-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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H20

N20

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 r

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 3134 + RQV..PA 371/2 R	0,35	0 0,25 0,20	14,8-14,9 14,1-14,2 14,7-14,8 14,3-14,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 15,8 n

1. Edition

En

PE 10 P 110 A 920/5 LS 3138
Komb.-Nr. 0 401 849 712

RQ 300/1150 PA 535-1

supersedes

company: KHD

engine: BF 10 L 413 FZT
265 kW

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,0±0,1	9,7-10,0	0,4(0,75)			
300	8,6-8,8	1,1-1,9	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,9	600	20,0	10,3	1195-1210	300	7,0	100	min. 8,4	1150	11,3-11,4
VH =	max. 46°			4,0	1235-1265			300	6,9 - 7,1	800	12,0-12,1
				1350	0-1,0			370-430	= 2,0		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 800	0,9 bar 143,5-146,5 (141,0-149,0)	-	-	-	-	-

Checking values in brackets

7.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 n

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 10 P..LS 3138 + RQ..PA 535-1	0,90	0 0,50 0,35	12,0-12,1 10,0-10,1 11,5-11,6 10,2-10,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 v 5

1. Edition

En

PE 6 P 120 A 720 RS 7004

RQ 900 PA 695

Komb.-Nr. 9 400 087 297

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -

company:

Saab-Scania

engine:

DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(4,95-5,15)

mm (from BDP) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,1	20,7 - 20,9	0,6 (0,9)			3,3 + 0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 2,9 - 3,1 mm.

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2				rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
-	-	-	-	11,8 4,0 1000	900-905 941-955 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /~1000 strokes 2				cm ³ /~1000 strokes 5		Control rod travel mm 7
850	207,0-209,0 (204,0-212,0)	-	-	-	-	100	240,0 - 290,0 = 20,0 - 21,0 mm RW

Checking values in brackets

7.85

Testoil-ISO 4113

H24

H24

BOSCH

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 e

7. Edition

40

En

PE8P110A320 LS 3802

RQ 300/1150 PA 187-3

RQ 300/1150 PA 187-5

supersedes 11.484

company: Daimler-Benz

engine: OM 422

206 kW (280 PS)

Komb.-Nr. 0 401 848 708

1-8-7-2-6-3-5-4 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0-4,1

(3,95-4,15)

mm (from BDPN) = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery (*) cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery (**) cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,3+0,1	12,7-12,9	0,4(0,8)	11,7+0,1	13,3-13,5	
300	8,0-8,1	1,5-2,1	0,4(0,7)	7,9-8,1	1,5-2,1	
600	12,3+0,1	C, Sp. 4 u. 5	0,8(1,1)	11,7+0,1	C, Sp. 4 u. 5	
*) with return throttle (1)			**) without return throttle (2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,0-14,0	650	3,5	11,3 4,0 1350	1195-1210 1235-1265 0 - 1,0	300	8,1	100 300 420-460 550	min. 10,2 8,0-8,2 = 2,0 max. 1,8	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1195-1210 min.

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		3a		3b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
1150 (1)	127,0-129,0 (124,0-132,0)	600		600	118,0-122,0 (115,0-125,0)	100	130,0-150,0

Checking values in brackets

6.85

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Testoil-ISO 4113

B. Governor Settings

MB 14,6 e -2-

2

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1240-1270 0-1,5	300	8,1	100 300 420-460 550	min. 10,2 8,0-8,2 =2,0 max. 1,8	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1195-1210 min

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1150 (2)	133,5-135,5 (131,0-138,0)	600		600	109,5-115,5 (106,5-118,5)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-6

Komb.-Nr. 0 401 846 749

1 - 6 - 3 - 5 - 2 - 4

0 - 75-120-195-240-315⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

Note VDT - I - 401/102

supersedes 5.84

company: Daimler-Benz

engine: OM 421

159 kW (216 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1
(3,95-4,15) mm (from BDC) cyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery *) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery **) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)	11,7+0,1	13,2-13,4	
300	8,3-8,5	1,2-1,8	0,4(0,7)	7,8-8,0	1,2-1,8	
600	-	C, Sp. 4 u. 5	0,6(0,9)	-	C, Sp. 4 u. 5	
*) with return throttle (1)			**) without return throttle (2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
650	13,2-14,0	650	13,6	11,5 4,0 1350	1195-1210 1240-1270 0 - 1,0	300	8,4	100 300 430-470	min. 10,0 8,3-8,5 =2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1195-1210 min

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
(1) 1150	128,0-130,0 (125,0-133,0)	600	600	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

B. Governor Settings

MB 11,0 c 1

- 2 - (2)

Checking of slider PRG check (1)		Full-load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	10,7 4,0 1350	1195-1210 1240-1270 0 - 1,0	300	7,9	100 300 410-440	min. 9,5 7,8-8,0 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
(2) 1150	132,0-134,0 (129,5-136,5)	600	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7

En Checking values in brackets

Test Specifications

Fuel Injection Pumps ②

and Governors

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-8
Komb.-Nr. 0 401 846 755

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Note VDT - I - 401/102

supersedes 9.83

company: Daimler-Benz

engine: OM 421

148 kW (201 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) cyl. 6; RW = 9,0-12,0 mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery *) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery **) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	12,7-12,9	0,4(0,8)	12,4+0,1	12,9-13,1	
300	8,5-8,7	1,6-2,2	0,4(0,7)	8,7-8,9	1,6-2,2	
*) with return throttle (1)			**) without return throttle (2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
650	13,2-14,0	650	13,6	11,6 4,0 1350	1195-1210 1240-1270 0-1,5	300	7,1	100 300 400-440 = 2,0	min.8,5 7,0-7,2 40 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a = - mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2		Control rod travel mm 3a		cm ³ /1000 strokes 5		Control rod travel mm 6b
(1) 1150	127,0-129,0 (124,0-132,0)	600		600	117,0-121,0 (114,0-124,0)	100	130,0-150,0

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,2-14,0	650	13,6	11,4 4,0 1350	1195-1210 1240-1270 0-1,5	300	7,1	100 300 400-440	min. 8,5 7,0 - 7,2 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a = - mmSpeed regulation: At 1195-1210 min⁻¹1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
(2) 1150	129,0-131,0 (126,5-133,5)	600		-	-	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Testoil-ISO 4113**B. Governor Settings**

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 c 2

4. Edition

En

PE6P110A 320LS 3805
Komb.-Nr. 0 401 846 748

RQV 300-1150PA 524-4

supersedes 5.84
company: Daimler-Benz
engine: OM 421
159 kW (216 PS)

1 - 6 - 3 - 5 - 2 - 4
0 - 75-120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Note VDT - I - 401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) $\gamma 1. 6$; $PW=9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery ** cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)	11,7+0,1	13,2-13,4	
300	8,3-8,5	1,2-1,8	0,4(0,7)	7,8-8,0	1,2-1,8	
600	-	C, Sp. 4 u. 5	0,6(0,9)	-	C, Sp. 4 u. 5	
* with return throttle (1)				** without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 19	100	min. 10,0	250	1,0-1,2
ca. 65	11,5	1190-1200					300	8,3-8,5	550	3,4-3,7
	4,0	1240-1270							850	4,9-5,3
	1400	0-1,0				330-730			1150	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150 (1)	128,0-130,0 (125,0-133,0)	1190-1200*	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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Testoil-ISO 4113

B. Governor Settings

MB 11,0 c 2

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1170	15,2-17,8	-	-	-	ca. 19	100	min. 9,5	250	1,0-1,2
ca. 65	10,7 4,0 1400	1190-1200 1240-1270 0-1,0				31 0-710	300	7,8-8,0	550 850 1150	3,4-3,7 4,9-5,3 7,7
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150 (2)	132,0-134,0 (129,5-136,5)	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 w 2

1. Edition

En

PE 6 P 120 A 720 RS 7007 y RQV 200-1000 PA 539-2
Komb.-Nr. 0 402 646 812 y
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company: Scania
DSC 1101
engine: LKW 112

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,5-4,6 \\ (4,45-4,65) \end{matrix}$ mm (from BDC) = RW 6,0 - 8,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	16,0+0,1	22,4 - 22,6	0,7 (1,0)			3,3 ± 0,1
225	4,4-4,6	1,4 - 1,8	0,3 (0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 3,0 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1040	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 62	15,0	1040-1050					225	4,4-4,6	430	3,1-3,6
	4,0	1175-1205					310-370	=2,0	720	5,1-5,4
	1300	0-1,0							000	7,9

Torque control travel s = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	5	6	7	8
LDA 700	0,9 bar 224,0-226,0 (221,0-229,0)	1040-1050 *	LDA 1000	0,9 bar 220,0-228,0 (218,0-230,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-
			LDA 500	0 bar 164,0-168,0 (162,0-170,0)			-

Checking values in brackets

* 1 mm less control rod travel than col 2

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7.85

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 7007 y +RQV..PA 539-2	0,90	0 0,41 0,29	16,0 - 16,1 11,8 - 11,9 14,0 - 14,1 12,4 - 12,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel 6 - 8 mm
- Firing sequence, engine : 1-5-4-2-6-3-7-8

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 15,9 b 2

1. Edition

En

PES 6 P 120 A 320 RS 7105

RQV 400-750 PA 731

supersedes

Komb.-Nr. 0 402 746 803

company Baudouin

Values only apply to test nozzle-and-holder assembly

engine: 6 P 15-2

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{3,6-3,7}
 (3,55-3,75) mm (from BDC); RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	12,2+0,1	41,9-42,1	0,5(0,9)			
400	4,5-4,7	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 25	11,2	750-755	-	-	-	ca. 8	100	min. 6,1	420	
	4,0	776-789					400	4,5-4,7	-	2,0
	900	0-1,0							700	4,5
									750	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	419,0-421,0 (416,0-424,0)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.85

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J11

J11

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 c 1

1. Edition

En

PE 12 P 120 A 120 RS 7106 RQV 400-750 PA 731

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 402 630 800

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 074

supersedes -

company: Baudonin

engine: V 12 P 15-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,6-3,7}
(3,55-3,75) mm (from BD ϕ) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,2 \pm 0,1	41,9 - 42,1	0,5 (0,9)			
400	4,5-4,7	1,7 - 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	700	15,2-17,8	-	-	-	ca. 8	100	min. 6,1	390	1,0-2,0
ca. 23	11,2 4,0 900	750-755 776-789 0 -1,0					400	4,5-4,7	420 - 700 750	2,0 4,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm ³ /1000 strokes		Starting fuel delivery idle switching point rev/min cm ³ /1000 strokes ⑥		Torque-control ⑤ travel rev/min Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
700	419,0-421,0 (416,0-424,0)	750 - 755 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.85

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J12

J12

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,7 b

1. Edition

Fn

PES 6 P 120 A 720 LS 7107

RQ 300/1100 PA 757

Komb.-Nr. 0 402 746 804

supersedes

company: Daimler-Benz

engine: OM 427 HA

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 5,2-5,3 \\ (5,15-5,35) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,4+0,1	19,7-19,9	0,5(0,9)			
300	5,8-6,0	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	12,4	1145-1160	300	5,9	100	min. 7,5	-	-
VH = max. 46°				4,0	1220-1250			300	5,8-6,0		
				1350	0-1,5			380-420	= 2,0		

Torque-control travel

on flyweight assembly dimension a = - mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,75 bar 197,0-199,0 (194,0-202,0)	-		LDA 600	0,75 bar 195,0-198,0 (192,0-201,0)	100	150,0-170,0 (146,0-174,0)
				LDA 500	0 bar 144,0-146,0 (141,0-149,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 11,7 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 7107 + RQ..PA 757	0	0,23 0,37	10,7-11,0 11,0-11,2 12,4-12,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications

Distributor-type

Fuel-injection Pumps

En

VE 4/9 F 2250 R 41

Overflow temperature 45° C

0 460 494 027

 supersedes 3.85
 company: Renault
 engine: 852

DHK:1 688 901 022

Fuel injection test tubing 1 680 750 073

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1400	34,5-35,5 cm ³ /1000 strokes		2,5
1.4 Idle regulation	400	7,0-11,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2500	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9-4,5	2000 6,5-7,1	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	2250 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 (16,0-24,0) 36,0-38,0 (34,7-39,3) 36,5-38,5 (35,2-39,8) (32,7-37,3) 33,5-36,5 (32,0-38,0)	
switch-off	2500	0	
Idle stop	650 400	max. 5,0 (5,0-13,0)	
End stop	320 430	min. 45,0 max. 45,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,5
XK	20,1-22,1
XL	9,5-13,3

Observations

2.4 Solenoid

cut-in voltage

min. 10V
rated voltage 12 V.

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PEU 2,5 a

4. Edition

En

VE 4/9 F 2250 R 84

Overflow temperature 45° C

0 460 494 079

DHK 1 688 901 022/130 bar

Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 3.85

company: Peugeot

engine: XD 3

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,4-5,8 mm		
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	38,7-39,7 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	6,0-10,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2325	25,5-31,5 cm ³ /1000 strokes		
1.6 Start	100	min. 45 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1500	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	700 0,6-1,4(0,3-1,7)	1000 2,5-3,1(2,1-3,5)	1500 (4,9-6,3)	2000 8,1-8,9(7,8-9,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,1-2,7		2200 7,5-8,1	
Overflow delivery	n = rev/min cm ³ /10 s	400 42-83(27-98)		2250 55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2450 2325 2200 2000 1500 1000 600	max. 2,0 4,5-12,5 (4,5-12,5) (24,5-32,5) 40,0-42,0 (38,7-43,3) 40,0-42,0 (38,7-43,3) (36,9-41,5) 38,1-40,7 (36,9-41,5) 36,8-39,8 (35,3-41,3)	
switch-off			
Idle stop	400	(4,0-12,0)	
End stop	440 350 450	max. 2,0 min. 45 max. 45	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	K1
KF	5,2-5,4
MS	0,9-1,2
SVS	3,3
A XK	20,2-22,2
B XL	9,9-13,3

Observations

2.4 Solenoid

cut-in voltage

min. 10 V

rated voltage 12 V.

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PEU 2,5 a 1

1. Edition

En

VE 4/9 F 2250 R 84-1 Overflow temperature 45° C
 0 460 494 125
 DHK 1 688 901 022/130 bar
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes
 company: Peugeot
 engine: XD 3

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

— mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,4-5,8 mm		
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	38,7-39,7 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	6,0-10,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2325	25,5-31,5 cm ³ /1000 strokes		
1.6 Start	100	min. 45 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1500	—		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	700 0,6-1,4 (0,3-1,7)	1000 2,5-3,1 (2,1-3,5)	1500 (4,9-6,3)	2000 8,1-8,9 (7,8-9,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,1-2,7		2200 7,5-8,1	
Overflow delivery	n = rev/min cm ³ /10 s	400 42-83 (27-98)		2250 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2450 2325 2200 2000 1500 1000 600	max. 2,0 4,5-12,5 (4,5-12,5) (24,5-32,5) 40,0-42,0 (38,7-43,3) 40,0-42,0 (38,7-43,3) (36,9-41,5) 38,1-40,7 (36,9-41,5) 36,8-39,8 (35,3-41,3)	
switch-off			
Idle stop	400 440 350 450	(4,0-12,0) max. 2,0 min. 45 max. 45	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	K1
KF	5,2-5,4
MS	0,9-1,2
SVS	3,3
A	
B	

Observations

2.4 Solenoid	cut-in voltage min. 10 V rated voltage 12 V.
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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PEU 2,3 k

4. Edition

En

VE 4/9 F 2075 R 126

Overflow temperature 45° C

 supersedes 1.85
 company: Peugeot
 engine: XD 3 S

0 460 494 121

DHK 1 688 901 022/130 bar

Fuel injection test tubing 6x2x450 mm/1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,8 - 6,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,6 - 6,2 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	52,5 - 53,5 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	41,3 - 42,3 cm ³ /1000 strokes	0	
1.4 Idle regulation	350	20,0 - 24,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2300	26,5 - 32,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 67,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500	2000
LDA=0,8 bar	mm	0,8-1,6(0,5-1,9)	2,5-3,3(2,7-3,6)	(5,3-6,7)	7,8-8,6(7,5-8,9)
2.2 Supply pump	n = rev/min	200	750	2000	
LDA=0,8 bar	bar (kgf/cm ²)	1,4-2,0	3,4-4,0	7,1-7,7	
Overflow delivery	n = rev/min	500	2075		
	cm ³ /10 s	42-83 (27-98)	55-138 (40-153)		

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600	max. 1,0	0,8
	2300	(25,5-33,5)	0,8
	2200	39,5-45,5 (38,5-46,5)	0,8
	2000	51,0-53,0 (49,7-54,3)	0,8
	1500	(50,7-55,3)	0,8
	1000	48,5-51,5 (47,7-52,3)	0,8
	750*	46,1-47,1 (44,3-48,9)	0,25
	500	(38,8-44,8)	0
switch-off			
electr.	400	0	
Idle stop	500	max. 1,0	
	400	8,0-12,0 (6,0-14,0)	
	350	(18,0-26,0)	
End stop	230	min. 60	
	330	max. 60	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	
KF	K 1
MS	5,4 - 5,7
SVS	1,2 - 1,4
	4,6
A XK	20,2 -22,2
B XL	9,3 -12,6

Observations

 * LDA-stroke 4,5 min
 Use adjusting nut
 (46) to correct.

2.4 Solenoid	cut-in voltage	min. 10 V
		rated voltage 12 V.

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 k 3

3. Edition

En

VE 4/9 F 2075 R 126-1 Overflow temperature 45° C
 0 460 494 123
 DHK 1 688 901 022/130 bar
 Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 1.85
 company: Peugeot
 engine: XD 3 S

Testcil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting — mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,8 - 6,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,6 - 6,2 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	52,5 - 53,5 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	41,3 - 42,3 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	17,0 - 21,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2350	26,5 - 32,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 67,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500	2000
LDA=0,8 bar	mm	0,8-1,6 (0,5-1,9)	2,5-3,3 (2,7-3,6)	(5,3-6,7)	7,8-8,6 (7,5-8,9)
2.2 Supply pump	n = rev/min				
LDA=0,8 bar	bar (kgf/cm ²)	200 1,4-2,0	750 3,4-4,0	2000 7,1-7,7	
Overflow delivery	n = rev/min	500		2075	
	cm ³ /10 s	42-83 (27-98)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2650	max. 1,0	0,8
	2350	(25,5-33,5)	0,8
	2250	38,5-44,5 (37,5-45,5)	0,8
	2000	51,0-53,0 (49,7-54,3)	0,8
	1500	(50,7-55,3)	0,8
	1000	48,5-51,5 (47,7-52,3)	0,8
	750*	46,1-47,1 (44,3-48,9)	0,25
	500	(38,8-44,8)	0
switch-off			
electr.	400	0	
Idle stop	400	(15,0-23,0)	
	450	5,0- 9,0 (3,0-11,0)	
	550	max. 3,5	
End stop	230	min. 60	
	330	max. 60	

3. Dimensions

Designation	for assembly and adjustment mm
K	K 1
KF	5,4 - 5,7
MS	1,2 - 1,4
SVS	4,6
A XK	20,2 -22,2
B XL	9,3 -12,6

Observations

* LDA-stroke 4,5 mm
 Use adjusting nut
 (46) to correct.

2.4 Solenoid

cut-in voltage

min. 10 V

rated voltage 12 V.

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PEU 2,5 d
2. Edition

VE 4/9 F 2075 R 126-3. Overflow temperature 45° C
0 460 494 178
DHK 1 688 901 022/130 bar
Fuel injection test tubing 6x2x450 mm/1 680 750 073

supersedes 3.85
company: Peugeot
engine: XD 3 T

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,8 - 6,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,6 - 6,2 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	52,5 - 53,5 cm ³ /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	500	41,3 - 42,3 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	17,0 - 21,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2350	26,5 - 32,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 67,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500	2000
LDA = 0,8 bar	mm	0,8-1,6 (0,5-1,9)	2,5-3,3 (2,7-3,6)	(5,3-6,7)	7,8-8,6 (7,5-8,9)
2.2 Supply pump	n = rev/min	200	750	2000	
LDA = 0,8 bar	bar (kgf/cm ²)	1,4-2,0	3,4-4,0	7,1-7,7	
Overflow delivery	n = rev/min	500	2075		
	cm ³ /10 s	42-83 (27-98)	55-138 (40-153)		

2.3 Fuel deliveries

Speed control level	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2650	max. 1,0	0,8
	2350	(25,5-33,5)	0,8
	2250	38,5-44,5 (37,5-45,5)	0,8
	2000	51,0-53,0 (49,7-54,3)	0,8
	1500	(50,7-55,3)	0,8
	1000	48,5-51,5 (47,7-52,3)	0,8
	750*	46,1-47,1 (44,3-48,9)	0,25
	500	(38,8-44,8)	0
switch-off			
electr.	400	0	
Idle stop	400	(15,0-23,0)	
	450	5,0- 9,0 (3,0-11,0)	
	550	max. 3,5	
End stop	230	min. 60	
	330	max. 60	

3. Dimensions

Designation	for assembly and adjustment mm
K	K 1
KF	5,2 - 5,4
MS	1,2 - 1,4
SVS	5,5
A XK	20,2 -22,2
B XL	9,3 -12,6

Observations

* LDA-stroke 4,5 mm
Use adjusting nut
(46) to correct.

2.4 Solenoid	cut-in voltage	min. 22,0 V
		rated voltage 24,0 V

Test Specifications

Distributor-type

Fuel-injection Pumps

En

Testoil-ISO 4113

 VE 5/10 F 2400 L 137
 0 460 405 030

Overflow temperature 45° C

 supersedes 3.85
 company: VWV
 engine: 153

 All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers
 Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

 Test instructions and Test Equipment
 see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply-pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1400	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	375	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.4 Idle regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.5 Full-speed regulation	100	min. 50,0 cm ³ /1000 strokes		
1.6 Start	-			
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4		2400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Delivery strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 27,0-29,0 (25,7-30,3) (30,7-35,3) 23,3-26,3 (21,8-27,8)	
switch-off mech. electr.	2400 400	0 0	
Idle stop	375 450	(4,0-12,0) max. 3,0	
End stop	400 500	min. 15,5 max. 23,5	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	2,8
A	
B	

Observations

2.4 Solenoid

 cut-in voltage xxx min. 10,0 V
 rated voltage 12 V.

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⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VWV 2,0 i 2

4. Edition

En

VE 5/10 F 2400 L 137-1 Overflow temperature 45° C

 superseded 3.85
 company: VWV
 engine: 153

0 460 405 032

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply-pump pressure	1400	5,0-5,6 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1400	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	375	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2650	6,0-12,0 cm ³ /1000 strokes		
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4		2400 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 27,0-29,0 (25,7-30,3) (30,7-35,3) 23,3-26,3 (21,8-27,8)	
switch-off	2400	0	
mech.			
electr.	400	0	
Idle stop	375	(4,0-12,0)	
End stop	450 400 500	max. 3,0 min. 15,5 max. 23,5	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	2,8
A	
B	

Observations

2.4 Solenoid

cut-in voltage xxx min. 10,0 V

test voltage xxx rated voltage 12 V.

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9.85

J22

J22

Test Specifications

Distributor-type

Fuel-injection Pumps

En

Testoil-ISO 4113

 VE 4/9 F 2400 R 138
 O 460 494 131

Overflow temperature 45° C

 supersedes 1.85
 company: VWV
 engine: 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply-pump pressure	1500	4,3-4,9 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	31,5-32,5 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	475	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2600	11,0-17,0 cm ³ /1000 strokes		
1.6 Start	100	min. 35 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,2-2,8	2400 6,4-7,0	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)	2400 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 26,8-28,8 (25,5-30,1) (29,7-34,3) 20,2-23,2 (18,7-24,7)	
switch-off			
electr.	400	0	
Idle stop	475 650 1200	max. 7,5 max. 5,0 min. 18,0 max. 23,5	
End stop	400 500		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	2,7
* FH	1,8-2,4
A XK	17,0-19,0
B XL	9,8-13,2

Observations

operating stroke
(KSB)

2.4 Solenoid	cut-in voltage xxx min. 10,0 V rated voltage 12 V.
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Test Specifications

Distributor-type

Fuel-injection Pumps

Test ISO 4113

VE 4/9 F 2400 R 138-1

Overflow temperature 45° C

0 460 494 140

 supersedes 1.85
 company: VWV
 engine: 086

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm	
1.2 Supply-pump pressure	1500	4,3-4,9	bar (kgf/cm ²)	
1.3 Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
Full-load delivery without charge-air pressure	1500	31,5-32,5	cm ³ /1000 strokes	2,5 (3,0)
1.4 Idle regulation	450	6,0-10,0	cm ³ /1000 strokes	2,0 (3,0)
1.5 Full-speed regulation	2600	11,0-17,0	cm ³ /1000 strokes	
1.6 Start	100	min. 35	cm ³ /1000 strokes	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,2-2,8		2400 6,4-7,0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 26,8-28,8 (25,5-30,1) (29,7-34,3) 20,2-23,2 (18,7-24,7)	
switch-off mech. electr.	2400 400	0 0	
Idle stop	450 650 1200	(4,0-12,0) max. 5,0 max. 7,0	
End stop	400 500	min. 18,0 max. 23,5	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	2,7
*FH	1,8-2,4
A	
B	

Observations

operating stroke
(KSB)

2.4 Solenoid	cut-in voltage	xxx min. 10 V
	rated voltage	12 V

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 FIA 1,9 e

3. Edition

En

VE 4/9 F 2300 R 141

0 460 494 132

DHK: 1 688 901 022/130 bar

Pour la conduite d'essai de refoulement 6x2x450 mm/1 680 750 073

Overflow temperature 45° C

supersedes

company:

engine:

10.84

Fiat

X 8/43

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3 - 4,7 mm		
1.2 Supply-pump pressure	1500	5,6 - 6,2 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1500	29,2 - 30,2 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	350	9,0 - 13,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2500	11,0 - 17,0 cm ³ /1000 strokes		
1.6 Start	100	min. 55,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1500			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 1,7-2,5 (1,4-2,8)	1500 (3,8-5,2)	2300 7,1-7,9 (6,8-8,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,8 - 3,4		2300 7,4 - 8,0
Overflow delivery	n = rev/min cm ³ /10 s	400 42-83 (27-98)		2300 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600 2500 2400 2250 1500 1000 600	6,2-6,8 (6,2-6,9) (10,0-18,0) 21,0-27,0 (20,0-28,0) 31,0-33,4 (29,9-34,5) (27,4-32,0) 28,9-31,5 (27,9-32,5) 30,0-33,0 (28,5-34,5)	
switch-off			
Idle stop	350 400 540	(7,0-15,0) max. 4,0 max. 1,5	
End stop	300 400	min. 45,0 max. 46,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,1 - 3,4
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	2,8
A XK	20,2-22,2
B XL	10,3-13,7

Observations

2.4 Solenoid

cut-in voltage

min. 10V

rated voltage 12 V.

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Test Specifications

Distributor-type Fuel-injection Pumps

VE 5/10 F 2250 L 150

Overflow temperature 45° C

supersedes 7.83

company: VWV

engine: 153 T Audi 100

0 460 405 033

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02 (0,04)$

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75	
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	43,5-44,5 cm ³ /1000 strokes	0,75	2,5
Full-load delivery without charge-air pressure	500	21,5-22,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	375	6,0-10,0 cm ³ /1000 strokes	0	2,0
1.5 Full-speed regulation	2525	9,0-15,0 cm ³ /1000 strokes	0,75	
1.6 Start	100	min.50,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 0,75 bar	n = rev/min mm	850 1,1-1,9 (0,8-2,2)	1500 (2,6-4,0)	2250 5,4-6,2 (5,1-6,5)
2.2 Supply pump LDA = 0,75 bar	n = rev/min bar (kgf/cm ²)	500 3,2-3,8		2250 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2700 2525 2250 1500 850 * 500	max. 3,0 (8,0-16,0) 37,0-39,0 (35,8-40,2) (41,8-46,2) 34,5-35,5 (32,7-37,3) (19,0-25,0)	0,75 0,75 0,75 0,75 0,4 0
switch-off			
electr.	400	0	
Idle stop	375 450	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 18,0 max. 25,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	4,2
A	
B	

Observations

Adjust TAS only at full LDA pressure of 0,75 bar.
Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46).

2.4 Solenoid

cut-in voltage xxx min. 10 V

test voltage xxxxxx rated voltage 12 V.

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 2,0 i 5

2. Edition

En

VE 5/10 F 2250 L 150-1

0 460 405 034

supersedes 7.83

company: VWV

engine: 153 T Audi 100 Aut.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	1500	43,5-44,5 cm ³ /1000 strokes	0,75	2,5
Full-load delivery with charge-air pressure	500	21,5-22,5 cm ³ /1000 strokes	0	
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes	0	2,0
1.5 Start	2525	9,0-15,0 cm ³ /1000 strokes	0,75	
1.6 Full-load speed regulation	100	min. 50,0 cm ³ /1000 strokes	0	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	850	1500	2250
LDA = 0,75 bar	mm	1,1-1,9 (0,8-2,2)	(2,6-4,0)	5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500	2250	
LDA = 0,75 bar	bar (kgf/cm ²)	3,2-3,8	7,3-7,9	
Overflow delivery	n = rev/min	500	2250	
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2700	max. 3,0	0,75
	2525	(8,0-16,0)	0,75
	2250	37,0-39,0 (35,8-40,2)	0,75
	1500	(41,8-46,2)	0,75
	850 *	34,5-35,5 (32,7-37,3)	0,4
	500	(19,0-25,0)	0
switch-off			
mech.	2250	0	
electr.	400	0	
Idle stop	375	(4,0-12,0)	
	450	max. 3,0	
End stop	400	min. 18,0	
	500	max. 25,0	
2.4 Solenoid	cut-in voltage	min. 10 V	
		rated voltage 12 V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-6,0
MS	1,7-1,9
SVS	4,2

A
B

Observations

Adjust TAS only at full LDA pressure of 0,75 bar. Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46).

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 REN 2,0 f

5. Edition

En

VE 4/9 F 2250 R 158

Overflow temperature 45° C

O 460 494 145

DHK: 1 688 901 022/130

Fuel injection test tubing 1 680 750 073 6x2x450 mm

supersedes

3.85

company:

Renault

engine:

J 85-706

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4 - 4,8 mm		
1.2 Supply-pump pressure	1400	4,9 - 5,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1400	34,5 - 35,5 cm ³ /1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	7,0 - 11,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0 - 23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9 - 4,5	2000 6,5 - 7,1	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	2250 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2400 2200 2100 1400 1000	max. 5,0 (16,0-24,0) 36,0-38,0 (34,7-39,3) 36,5-38,5 (35,2-39,8) (32,7-37,3) 33,5-36,5 (32,7-37,3)	
switch-off	2500	0	
Idle stop	650 400	max. 5,0 (5,0-13,0)	
End stop	320 430	min. 45,0 max. 45,0	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2 - 3,4
KF	5,7 - 5,9
MS	1,4 - 1,6
SVS	max. 3,6
A XK	18,8-20,8
B XL	9,4-12,8

Observations

2.4 Solenoid	cut-in voltage	min. 10 V rated voltage 12 V.
--------------	----------------	----------------------------------

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VMA 2,0 f

2. Edition

En

VE 4/9 F 2150 L 202

Overflow temperature 45° C

0 460 494 167

 supersedes
company:
engine:

 3.85
Motori VM
HR 488 HJ

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,3 - 4,7 mm	0,8	-
1.2 Supply-pump pressure	1500	4,5 - 5,1 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1500	48,0 - 49,0 cm ³ /1000 strokes	0,8	2,5
Full-load delivery without charge-air pressure	750	36,0 - 37,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	11,0 - 15,0 cm ³ /1000 strokes	0	2,5
1.5 Full-speed regulation	2420	12,0 - 18,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	32,0 - 52,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	1600	-	0,8	

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	1000	1500	2150
LDA=0,8 bar	mm	1,3-2,1 (1,0-2,4)	(3,8-5,2)	7,6-8,4 (7,3-8,7)
2.2 Supply pump	n = rev/min	750	1000	2150
LDA=0,8 bar	bar (kgf/cm ²)	2,0 - 2,6	2,8 - 3,4	6,7 - 7,3
Overflow delivery	n = rev/min	750	2150	
LDA=0,8 bar	cm ³ /10 s	42-83 (27-98)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550	max. 2,0	0,8
	2420	(11,0-19,0)	0,8
	2270	28,5-35,5 (28,0-36,0)	0,8
	2150	40,0-43,0 (37,5-45,5)	0,8
	1500	(46,8-51,2)	0,8
	750	48,0-51,0 (46,5-52,5)	0,8
	750*	45,5-46,5 (43,0-49,0)	0,4
	750	(33,5-39,5)	0
switch-off			
Idle stop	400	(9,0-17,0)	
	500	2,0-8,0	
	700	max. 4,0	
	400	min. 36	
	500	max. 37	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2 - 3,4
KF	5,2 - 5,4
MS	0,7 - 0,9
SVS	3,2
A	
B	

Observations

* LDA-stroke = 6,4 mm

2.4 Solenoid

cut-in voltage

min. 10 V

rated voltage 12 V.

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 13

1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1100 AOC 745-2 L

Komb.-Nr. 0 400 876 328

supersedes -

company Daimler-Benz

engine OM 352 A

92 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1080	11,1+0,1	6,5 - 6,6	0,3 (0,45)			
350	7,6-7,8	0,8 - 1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 35	350	7,7	1080	11,1-11,2
	X =						100	min. 19,5	850	11,7-11,8
ca. 56	10,1	1130-1140					350	7,6 - 7,8	1000	11,2-11,4
2a	4,0	1220-1250					480 -	540 = 2,0		
	1325	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
1080	65,0 - 66,0 (63,0 - 68,0)	1130-1140*	850		65,0 - 67,0 (62,5 - 69,5)	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 3

En 9. Edition

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 0 400 876 260

RSV 350-1300 A 0 B 1105 DL
A 0 C 1105 L

supersedes 1.85
company Daimler-Benz
engine OM 352 A
92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,0+0,1	6,7-6,8	0,3(0,45)			
350	6,9-7,1	0,8-1,2	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,0	-	-		loose	350	7,0	1300	10,0-10,1
	x = 5,0								500	10,3-10,5
ca. 65	9,0	1340-1350					100	min.19,0	750	10,3-10,4
(2a)	4,0	1420-1450					350	6,9-7,1	1140	10,0-10,1
	1540	0,3-1,7					460-520	= 2,0		
							700	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to .) rev/min 3	3a Fuel delivery characteristics rev/min 4	5 Starting fuel delivery Idle rev/min 6	4a Idle stop rev/min 8	Control rod travel mm 9
	cm ³ /1000 strokes 2		cm ³ /1000 strokes 5	cm ³ /1000 strokes 7		
1300	67,0-68,0 (65,0-70,0)	1340-1350*	750	58,0-60,0 (55,5-62,5)	100	78,0-88,0 (75,0-91,0)
					-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.85

K7

K7

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 5,7 s 1

3. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 A0 C 1107 L

Komb.-Nr. 0 400 876 263

supersedes 4.77

company Daimler-Benz

engine OM 352

81 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDG) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	8,7-8,8	5,0-5,1	0,3(0,45)			
350	6,9-7,1	0,5-1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	350	6,5	1300	8,7-8,8
	X =						100	min. 19,0	800	9,5-9,7
ca. 63	7,7	1340-1350					350	6,9-7,1	500	9,8-9,9
2a	4,0	1385-1415					525-585	= 2,0		
	1550	0,3-1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	50,0-51,0 (48,0-53,0)	1340-1350*		800	50,5-53,5 (48,5-55,5)	100	13,7-14,3 mm RW	350	7,0
				500	47,5-49,5 (45,5-51,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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K8

K9

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 h

1. Edition

En

PE 10 P 120 A 320 LS 3829 RQV 350-900 PA 493-4
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Daimler-Benz
engine: OM 423 LA
309 kW
Komb.-Nr. 0 401 849 714

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{4,0 - 4,1}{(3,95 - 4,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
880	10,8+0,1	16,9-17,1	0,5 (0,8)			
350	4,6-4,8	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	900	15,2-17,8	-	-	-	ca. 13	100	min. 6,5	350	1,2-1,3
ca. 63	9,8	915-925					350	4,6-4,8	400	1,7-2,1
	4,0	945-975							600	3,1-4,2
	1050	0-1,5				350-450			900	8,2-8,4
						③a			970	9,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 880	0,7 bar 169,0-171,0 (166,0-174,0)	915-925*	LDA 600	0,7 bar 163,0-167,0 (160,0-170,0)	100	140,0-160,0 (136,0-164,0)	-	-
LDA 880	0,7 bar 84,0-87,0		LDA 500	0 bar 138,0-140,0 (135,0-143,0)				
**	(81,0-84,0)							

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Adjusted at the inner lever of the reduced-delivery stop.

9.85

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 h

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar		
PE 10 P..LS 3829 + RQV..PA 493-4	0,70	0 0,42		10,8-10,9 9,9-10,1 10,5-10,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 h 1

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 350-1300 AOB 1150-2 L

supersedes
company Daimler-Benz
engine OM 314

Komb.-Nr. 9 400 085 251

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,0+0,1	6,2-6,3	0,3 (0,5)			
350	7,1-7,3	1,0-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	350	6,7	1300	10,0-10,1
	x = 3,0								500	10,0-10,2
ca. 50	9,0	1340-1350					100	min.19,0	400	11,6-11,8
2a	4,0	1390-1420					350	7,1-7,3		
	1500	0,3-1,7					430-500	= 2,0		
							700	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	62,0-63,0 (60,0-65,0)	1340-1350*	-	-	-	100	14,2-14,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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Testoil-ISO 4113

K11

K11

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 3,8 4

2. Edition

En

PES 4A 90 D 410 RS 2294 RSV 350-1400 A0B 2006L
Komb.-Nr. 0 400 874 218 AOC 2006 L

superseded by C.32
company Daimler-Benz
engine OM 314
63 kW (85PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
 $(2,10-2,30)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,4+0,1	6,4-6,5	0,3(0,45)			
350	9,2-9,4	2,4-3,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control rev/min 10		Control rod travel mm 11
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9				
loose	800	0,3-1,0	-	-	-	ca.31	350	9,3	-	-	-
	X=						100	min.19,0			
ca.62	9,4	1420-1430					350	9,2-9,4			
2a	4,0	1490-1505					510-570	2,0**			
	1600	0,3-1,7					650	max.1,0			

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/2 turn.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to 1 rev/min 3	3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6	5 Fuel delivery cm ³ /1000 strokes 7		4a Idle stop rev/min 8		Control rod travel mm 9
1380	63,5-64,5 (61,5-66,5)	1420-1430*	-	-	100	14,7-15,3 mm RW		-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.35

K12

K12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 p 2

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 750-1400 AOC 2032-1 L

Komb.-NR. 0 400 874 222

supersedes-

company Daimler-Benz

engine OM 314

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1345	10,5 + 0,1	6,8 - 6,9	0,3 (0,15)			
750	5,9 - 6,1	1,7 - 2,3	0,2 (0,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min mm 10 11	
loose	Control rod travel mm 2	Control rod travel mm rev/min 3								
	800	0,3-1,0	-	-	-	ca.30	750	6,0	450	12,2+0,2
	X = 3,75						100	min. 19,5	600	10,5+0,2
ca.51	9,5	1385-1395					750	5,9-6,1		
2a	4,0	1420-1450					765 - 795	2,0		
	1500	0,3 - 1,7					820	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit. Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
1345	68,0 - 69,0 (66,0 - 71,0)	1385-1390*	-	-	-	100	73,0-83,0 (70,0-86,0) =14,3-14,7 mm RW	750	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

9.85

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Testoil-ISO 4113

K13

K43

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 h 2

1. Edition

En

PES 4 A 90 D 410 RS 2294

RSV 400-1200 AOB 2188 L

Komb.-Nr. 9 400 085 233

supersedes:
company Daimler-Benz
engine OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,0+0,1	6,2 - 6,3	0,3 (0,5)			
400	7,1-7,2	1,0 - 1,4	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 3,0	-	-	-	ca. 24	400	6,7	1200	10,0-10,1
							100	min. 19,0	550	10,0-10,2
							400	7,1-7,3	450	11,6-11,8
ca. 49	9,0	1240-1250					480 -	540 = 2,0		
2a	4,0	1295-1325					700	max. 1,0		
	1400	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	61,5 - 62,5 (59,5 - 64,5)	1240-1250*	-	-	-	100	14,2-14,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.85

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Testoil-ISO 4113

K14

K14

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1 g

5. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415
Komb.-Nr. 0 400 856 024

RQ 300/1250 AB 935 DL

supersedes 9.84

company: KHD

engine: BF 6 L 913 T

96 kW

bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,90-2,00 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,1+0,1	8,0 - 8,1	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
800	19,2-20,8	800	20,0	11,1	1295-1310	300	8,4	100	min. 9,8	1250	12,1-12,2
VK = max. 46°				4,0	1370-1400			300	8,3-8,5	800	13,3-13,4
				1500	0 - 1,0			570-610	2,0	910	13,0-13,2
										1050	12,4-12,7

Torque-control travel on flyweight assembly dimension \pm = 0,4 mmSpeed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	80,0 - 81,0 (78,0 - 83,0)	-	800	85,0-87,0 (82,5-89,5)	-	-

Checking values in brackets

9.35

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K15

K15

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 i

5. Edition

En

PES 6 A 85 D 410/3 RS 2415

RQV 300-1250 AB 1131 L

supersedes 3.84

company KHD

Komb.-Nr. 0 400 836 023

engine: BF 6 L 913 T
96 KW bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 - 2,0$
($1,85 - 2,05$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	7,8 - 7,9	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1385	15,2-17,8	-	-	-	ca. 17	100	min. 10,0	250	0,9-1,1
ca. 65	11,0 4,0 1525	1290-1300 1400-1430 0-1,0				450-550	300 645-705 = 2,0	8,3-8,5	580 920 1250	3,9-4,1 5,4-5,6 7,8

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	78,0-79,0 (76,0-81,0)	1290-1300*	600	71,5-73,5 (69,0-76,0)	100	105,0-115,0 (102,0-118,0) = 17,4- 17,8 mm RW	1250 600 850	12,0+0,1 12,8+0,1 12,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

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K16

K16

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 a 3

1. Edition

En

PES 6 A 85 D 410/3 RS 2415 RS 325/1650 AOC 2087 L

Komb.-Nr. 0 400 866 116

supersede

company KHD

engine BF 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,7+0,1	7,9-8,0	0,3(0,45)			
325	7,9-8,1	1,2-1,8	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-		325	6,0	1600	11,7-11,8
	$x = 4,0$						325	5,9-6,1	440	12,9-13,5
VH ca.50	10,7	1650-1660					460-520	= 2,0	550	11,7-11,9
FH max.	4,0	1730-1760								
2a	1900	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
1250	78,5-79,5 (76,5-81,5)	1650-1660*	800	69,0-71,0 (66,5-73,5)	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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Testoil-ISO 4113

K17

K17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 K 1

1. Edition

En

PES 6 A 95 D 410 RS 2416
Komb.-Nr. 0 400 876 198

RSV 300-1150 A 8 C 616 DL

supersedes

company KHD

engine F 6 L 413 FR
106 kW/2300 min⁻¹
fitting 300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00
(1,85-2,05) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1140	8,2-8,3	7,6-7,7	0,3 (0,6)			
300	5,9-6,1	1,4-2,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 20	300	5,5	1140	8,2-8,3
	x = 5,0						300	5,9-6,1	500	9,1-9,2
							520-580	= 2,0	750	8,9-9,1
ca. 55	7,2	1180-1190							900	8,5
2a	4,0	1215-1245								
	1325	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1140	76,0-77,0 (74,0-79,0)	1180-1190 *	-	-	100	111,5-121,5 (108,5-124,5)	-	-	-
						= 13,6- 14,0 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 s

1. Edition

En

PES 6 A 95 D 410 RS 2416

RQ 300-1250 AB 1211 L

Komb.-Nr. 0 400 846 544

supersedes -
company: KHD
engine: BF 6 L 413 FR
123 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,75-1,85}
(1,70-1,90) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0+0,1	9,9-10,1	0,35 (0,6)			
300	6,4-6,6	1,9-2,5	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1280	15,2-17,8	-	-	-	ca. 18	100 300	min. 8,0 6,4-6,6	250 500 1000 1250	1,0-1,2 3,2-3,5 6,2-6,4 8,3
ca. 50	9,0 4,5 1500	1290-1300 1350-1380 0 - 1,0				370-485				

Torque control travel a = 0,30 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	99,0-101,0 (97,0-103,0)	1290-1300 *	600	91,5-94,5 (89,0-97,0)	100	120,0-130,0 (117,0-133,0) = 14,2-14,6 mm RW	1250 600 715 765	10,0+0 10,2+0 10,1+0 10,0+0
					300	19,0-25,0 (16,5-27,5)		

Checking values in brackets

* 1 mm less control rod trav

9.85

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K19

K4)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,2 a

En

6. Editione

PES 5 A 95 D 410 LS 2426 Z

RQ 250/1150 AB 839 DL

Komb.-Nr. 0 400 845 022 = MAN-Nr. 1-7528

supersedes 3.84

company: MAN

engine: D 2555 M/MF

124 kW/2300 min⁻¹

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{1,3 - 1,4}
 (1,25 - 1,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1170	15,0-15,4	540	0	150	6,6-8,1	880	15,8-16,0
				1200	10,0-14,4			250	4,5-6,7	1020	14,4-15,6
				1250	0 - 9			350	1,5-4,0		
				1320	0			440	0	1000	15,3-15,4

Torque-control travel
on flyweight assembly dimension a = 0,2 mmSpeed regulation: 1190 - 1205 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	100,5 - 102,5 (98,5 - 104,5)	-		800	104,0 - 107,0 (102,0 - 109,0)	100	146,5-156,5 =15,7- 16,3 mm RW
				500	max. 103,5 (max. 105,5)		

Checking values in brackets

10.85

K20

K20

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 c

1. Editione

En

PES 6 A 85 D 420 LS 2460
Komb.-Nr. 9 400 230 001

RSV 375-1100 A2B 2021 DR

supersedes

company Case
engine W 24 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,9+0,1	10,2-10,3	0,3 (0,5)			
375	7,3-7,5	1,4-2,0	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	375	6,9	1100	13,9-14,0
	X =						150	19,0-21,0	700	13,9-14,0
ca. 48	12,9	1140-1150					375	7,3-7,5		
2a	4,5	1225-1255					430-470	= 4,7		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ..)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	101,5-102,5 (100,0-104,0)	1140-1150*	700	100,5-103,5 (99,0-105,0)	100 375	120,0-140,0 14,0-20,0 (12,0-22,0)	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.85

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

WPP 001/4 MB 5,7 v3

10. Editione

En

PES 6 A 90 D 410 RS 2596 RSV 575-1250 A 1 B 618 L
Komb.-Nr. 0 400 876 295 A 1 C 618 L

supersedes 9.84
company Daimler-Benz
engine OM 352 A
115 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	13,2+0,1	7,8-7,9	0,3(0,45)			
575	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.25	575	7,7	-	-
		X = 4,0					100	min. 19,0		
ca.55	12,2	1250-1255					575	7,6-7,8		
2a	4,0	1274-1291					585-645	= 2,0		
	1445	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
1230	77,5-78,5 (75,5-80,5)	1250-1255*	-	-	100	80,0-90,0 (77,0-93,0) =16,0- 16,6 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.85

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K22

K22

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 2

7. Editione

En

PES 6 A 90 D 410 RS 2596
Komb.-Nr. 0 400 846 443

RQV 300-1400 AB 1066-1 DL

supersedes 5.84

company: Daimler-Benz

engine: OM 352 A

126 kW (171 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,4+0,1	7,4-7,5	0,3(0,45)			
300	8,9-9,1	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca. 23	100 300	min. 10,5 8,9-9,1	300 500 750 1500	0,8-1,3 2,3-2,8 4,1-4,3 8,6
ca. 63	11,4 4,0 1750	1440-1450 1580-1610 0-1,0				590-660				
						③a				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,7 bar 74,0-75,0 (72,0-77,0)	1440-1450*	LDA 500	0,7 bar 69,0-71,0 (66,5-73,5) LDA 500	100	73,0-83,0 (70,0-86,0) = 15,8-16,2 mm RW	1400 500 1000 1200	12,4+0,1 13,6+0,1 13,1+0,2 12,5+0,3
				55,0-57,0 (53,0-59,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.95

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K23

1023

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 v 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6A .. RS 2596 mit .. AB1066-1 DL	0,70	0	13,6 - 13,7
		0,35	12,3 - 12,4
		0,20	13,2 - 13,3
			12,5 - 12,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 v 11

4. Edition

En

PES 6 A 90 D 410 RS 2596
Komb.-Nr. 0 400 876 293

RSV 350-1400 A0B 1141 L
..AOC 1141 L

supersedes 3.84
company Daimler-Benz
engine OM 352 A
123 kW (157 PS) (1)
Schmidt rotary (2)
snow plough for
high altitudes

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm./100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
1400	11,9±0,1	7,4-7,5	0,3(0,45)	9,8-9,9	5,4-5,6	
350	7,9-8,1	0,8-1,4	0,2(0,4)	7,9-8,1	0,8-1,4	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	loose	350	8,0	1380	11,9-12,0
	x = 6,0						100	min. 16,0	600	12,6-12,7
							350	7,9-8,1	1050	12,6-12,7
							530-640	= 2,0	1260	11,9-12,0
ca. 64	10,9	14 0-14 0								
2a	4,0	1520-1550								
	1680	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5		rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	(1) 0,7 bar 74,0-75,0 (72,0-77,0)	1420-1430*	LDA 600	0,7 bar 65,5-68,5 (63,0-71,0)		100	78,0-88,0 (75,0-91,0) = 16,3 - 16,7 mm RW	-	-
			LDA 500	0 bar 48,5-49,5 (46,5-51,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.85

Testoil 150 A 113

L1

L1

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 31	350	8,0	1200	9,8-10,0
	x = 6,0						100	19,0-21,0	650	11,3-11,5
ca. 74	8,8	1440-1450					350	7,9-8,1		
②a	4,0	1470-1500					440 - 490	= 2,0		
	1635	0,3-1,7					600	0,3-1,0		

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(2) LDA	0,7 bar	1440-1450*		LDA	0,7 bar	100	78,0-88,0	-	-
1380	54,5-56,5			1000	60,2-62,2		bei 16,4-		
	(52,5-58,5)			600	(58,2-64,2)		16,8 mm RW		
					65,2-67,2				
					(63,2-69,2)				
				LDA	0 bar				
				500	53,0-55,0				
					(51,0-57,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2596 +RSV..AOC 1141 L (1) B	0,70	0 0,38 0,21	12,6 - 12,7 11,2 - 11,3 12,4 - 12,5 11,8 - 12,0
(2)	0,52	0,70 0 0,21	12,3 - 12,4 10,4 - 11,5 12,0 - 12,1 10,8 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Testing the hydraulic start-locking device

Locking at 0,45 - 0,55 bar

Unlocking at 0,25 - 0,35 bar

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v 2

4. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 RQV 300-1400 AB 1151 L

Komb.-Nr. 0 400 846 481

supersedes 8.82

company: Daimler-Benz

engine: OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,00-2,10}{1,95-2,15}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	7,7 - 7,8	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 24	100 300	min. 9,5 7,9-8,1	250 630 1020 1400	0,7-0,9 3,8-3,9 5,3-5,4 7,7
ca. 61	10,5 4,0 1700	1440-1450 1560-1590 0-1,0				350-500 ③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450*	LDA 600	0,7 bar 63,0 - 65,0 (61,0 - 67,0)	100	73,0 - 83,0 (70,0-86,0)	-	-
			LDA 450	0 bar 42,0 - 44,0 (40,0 - 46,0)		bei 14,8- 15,2 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L3

L3

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 7 8

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
PES 6 A..RS 2596 mit ..AB 1151 L	0,70			11,5 - 11,6
		0		10,2 - 10,3
		0,29		11,1 - 11,2
		0,18		10,6 - 10,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 n
3. Edition

En

PE 8 A 95 D 410 LS 2609 RQV 300-1250 AB 1128 L
Komb.-Nr. 0 400 648 129

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° $\pm 0,5$ ° ($\pm 0,75$ °)

supersedes 3.83
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)
2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,8-1,9}
(1,75-1,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,6+0,1	11,6-11,7	0,3(0,6)			
300	6,6-6,8	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	ca. 15	100	min. 8,2	250	0,5-0,8
ca. 66	10,6	1290-1300					300	6,6-6,8	580	2,9-3,1
	4,0	1370-1400							920	4,7-4,9
	1450	0 - 1,0					380-550		1250	7,7
						③a				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1290-1300 *	LDA	0,7 bar	100	130,0-140,0	1250	11,6+0,1
1250	116,0-117,0 (114,0-119,0)		750	121,0-124,0 (119,0-126,0)		(127,0-143,0)	750	12,2+0,1
			LDA	0 bar		14,6-14,8	1000	12,1+0,2
			500	101,5-103,5 (99,5-105,5)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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L5

L5

D. Adjustment Test for Manifold Pressure Compensator

KED 12,7 n

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 A .. LS2609 + .. AB 1128	0,70	0 0,27 0,23	12,2-12,3 11,4-11,5 12,0-12,1 11,6-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 6

5. Edition

En

PES4A85D 410/3 RS 2610 RSV 325-1150 A8B 2102 L
A8C 2102 L

Komb.-Nr. 0 400 864 051

supersedes 9.84
company KHD
engine F4L913
55 kW tractor
D 7807-S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1175	11,2+0,1	6,3-6,5	0,3(0,45)			
325	8,7-8,9	0,7-1,3	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7 rev/min 8			3 Torque control Control rod travel mm 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9			
loose	800	0,3-0,7 X = 4,0	-	-	-	ca. 20	325	8,3	1150	11,2-11,3
							100	min. 19,5	500	12,2-12,3
							325	8,7-8,9		
ca. 56	10,2	1215-1225					460-520	2,0	870	11,9-12,0
2a	4,0	1280-1310								
	1430	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ...) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 8	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		
1175	63,0-65,0 (61,0-67,0)	1215-1225*	800	60,0-62,0 (57,5-64,5)		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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L7

L7

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 i 1

3. Edition

En

PE 6 A 95 D 410 LS 2621 RQV 300-1250 AB 1195 L
Komb.-Nr. 0 400 646 271

1- 6- 5 - 4 - 3 - 2

0-75-120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 5.84

company: KHD

engine: F 6 L 413 F
141 kW / 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke		2,0-2,1 (1,95-2,15)		mm (from BDC)		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	10,4+0,1	9,2 - 9,4	0,35(0,6)			
300	6,4-6,6	0,8 - 1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1380	15,2-17,8	-	-	-	ca. 18	100	min.8,0	300	1,2-1,3
ca. 51	9,4	1290-1300					300	6,4-6,6	500	2,6-2,9
	4,5	1365-1395					380-440	=2,0	1000	5,4-5,6
	1500	0 - 1,0							1300	7,7-7,8
									1380	8,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1250	91,5 - 93,5 (89,5 - 95,5)	1290-1300 *	750	93,0-96,0 (90,5-98,5)	100	116,5-126,5 (113,5-129,5)	1250	10,4+0,1	
							750	10,8+0,1	
							850	10,6+0,2	
							950	10,4+0,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.85

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 3

1. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1400 A 8 C 707 L

Komb.-Nr. 0 400 864 060

supersedes KHD
company BF 4 L 913
engine 78 kW / 2800 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDCRW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,7+0,1	8,3 - 8,4	0,3 (0,45)			
325	8,4-8,6	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
loose	800	0,3-0,7 X = 5,25	-	-	-	ca. 22	325	8,0	1250	12,7-12,8
							100	min. 19,5	500	13,6-13,7
ca. 62	11,7	1290-1300					325	8,4-8,6	1015	13,1-13,3
2a	4,0	1390-1420					660 -	720 = 2,0		
	1560	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
LDA 1250	0,7 bar 82,5 - 83,5 (80,5 - 85,5)	1290-1300*		LDA 850	0,7 bar 84,5 - 86,5 (82,0 - 89,0)	100	115,0-125,0 (112,0-128,0) =18,6-19,0 mm RW	-	-
				LDA 500	0 bar 59,5 - 61,5 (57,5 - 63,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

8.85

BOSCH

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 4 A..RS 2638 + RSV..A 8 C 707 L	0,70	0 0,41 0,25	13,5 - 13,6 12,3 - 12,4 13,2 - 13,3 12,8 - 13,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 d 2

5. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 2 C 707-1 L

supersedes

Komb.-Nr. 0 400 864 061

KHD

company BF 4 L 913

engine 67 kW / 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port opening at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,7+0,1	8,2 - 8,3	0,3 (0,45)			
325	8,1-8,3	1,0 - 1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 21	325	7,7	1000	12,7-12,8
	X = 4,25						100	min. 19,5	500	13,7-13,8
ca. 43	11,7	1040-1050					325	8,1-8,3	800	13,3-13,5
②a	4,0	1175-1205					655 -	715 = 2,0	900	12,9-13,1
	1340	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	cm ³ /1000 strokes 7	8	rev/min 9	Control rod travel mm 9
LDA 1000	0,7 bar 81,5 - 82,5 (79,5 - 84,5)	1040-1050*	LDA 800	0,7 bar 86,5 - 88,5 (84,0 - 91,0)	100	115,0-125,0 (112,0-128,0)	-	-	-
			LDA 500	0 bar 61,5 - 63,5 (59,5 - 65,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

8.85

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Testoil-ISO 4113

L11

L11

D. Adjustment Test for Manifold Pressure Compensator

KHD 4,1 d 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 4 A..RS 2638 + RSV..A2C 707-1L	0,70	0 0,45 0,29	13,7 - 13,8 12,1 - 12,2 13,3 - 13,4 12,5 - 12,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 1

5. Edition

En

PES 3 A 85 D 410/3 RS 2642
Komb.-Nr. 0 400 863 007

RSV 325-1150 A 8 B 2102-1 L

supersedes 5.84
company KHD
engine F 3 L 913
42 kW/2300 min⁻¹
tractor
D 6007-S 23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 - 2,6$
 $(2,45-2,65)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,8+0,1	6,6-6,7	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	325	8,5	1150	11,0-11,1
	x = 1,75								700	11,8-11,9
							100	min. 19,0	1050	11,5-11,7
ca. 52	10,0	1190-1200					325	8,9-9,1		
2a	4,0	1240-1270					455-515	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
700	66,0-67,0 (64,0-69,0)	1190-1200*	1150	70,5-73,5 (68,5-75,5)	100	133,5-143,5 (130,5-146,5)	5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L13

L13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6k3
4. Edition

En

PE 6 P 110 A 320 RS 372-1 RSV 250-1100 P5/458 R
Komb.-Nr. 0 401 876 254 P5/458-1

supersedes 5.84
company DAF
engine DKTD 1160
191 kW (260 PS)

See VDT-I-420/114!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7 - 14,0	0,4 (0,75)			
250	6,6-6,8	0,7 - 1,2	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	12,2+0,1
	x = 4,25						250	6,6-6,8	300	12,4+0,5
ca. 51	11,0	1140-1150					640-700	= 2,0		
2a	4,0	1275-1305								
	1425	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 850	0,7 bar 136,5-139,5 (134,0-142,0)	1140-1150*	LDA 600	0 bar 127,5-130,5 (124,5-133,5)	100	245,0-285,0 (241,0-289,0) = 19,5 - 21,0 mm RW	250	6,7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.85

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 3 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 372-1 + . P5/458 u. ..P5/458-1	0,30	0,70 0 0,26	11,8-11,9 12,0-12,1 11,4-11,5 11,5-11,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 z

1. Edition

En

PE 6 P 120 A 320 RS 372-1

RQ 250/1000 PA 765

Komb.-Nr. 0 401 846 520

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company:

DAF

engine:

DWT 210

210 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) $\overset{9,0-12,0}{\text{mm}} = 9,0 - 12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
600	12,8+0,1	18,7 - 18,9	0,5 (0,9)			
250	7,4-7,6	1,6 - 2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11		Control rod travel mm 12
550	15,6-16,4	550	16,0	10,9 4,0 1250	1035-1050 1105-1135 0-1,0	250	6,8	100 250 330	min. 8,0 6,7-6,9 -370=2,0	600 990 800 900	13,0-13,1 11,9-12,1 12,6-12,8 11,9-12,2	

Torque-control travel on flyweight assembly dimension a = $\overset{0,55}{\text{mm}}$ Speed regulation: At $\overset{1035-1050}{\text{min}}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7
LDA 600	0,7 bar 187,0 - 189,0 (184,0 - 192,0)	-	-	LDA 990 LDA 600	0,7 bar 178,0 - 182,0 (175,0 - 185,0) 0 bar 141,0 - 143,0 (138,0 - 146,0)	100	280,0-320,0 (276,0-324,0) = 19,5-21,0 mm RW	

Checking values in brackets

9.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 z - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1 + RQ..PA 765	0,70	0 0,30 0,26	12,8 - 12,9 11,2 - 11,4 12,4 - 12,5 11,7 - 11,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 720 RS 373

RQ 250/1200 PA 418 R

Komb.-Nr. 0 401 846 397

supersedes 11.82

company: DAF

engine: DHU 825

169 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,50-2,60$
 $(2,45-2,65)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3+0,1	12,7-12,9	0,35 (0,6)			
250	7,2-7,4	0,8-1,2	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	11,3 4,0 1450	1245-1260 1320-1350 0-1,0	250	6,0	100 250 470-510 = 2,0	min.8,4 7,2-7,4	1000 650	12,3-12,4 12,3-12,5

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1245-1260 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1000	0,7 bar 127,0-129,0 (125,0-131,0)	-	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0 (191,0-219,0) = 19,5-21,5 mm RW

Checking values in brackets

9.85

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 1 1

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 373 + RQ..PA 418 R	0,70	0 0,34 0,30	12,3-12,4 11,2-11,3 12,0-12,1 11,4-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 720 RS 373

RQ 250/1200 PA 464 R

Komb.-Nr. 0 401 846 421

supersedes 11.82

company: D A F

engine: DHU 825

(169 kW, 230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $2,50-2,60$
 $(2,45-2,65)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3±0,1	12,7-12,9	0,35(0,6)			
250	7,2-7,4	0,8-1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11		Control rod travel mm 12
700	15,6-16,4	700	16,0	11,3 4,0 1450	1245-1260 1320-1350 0-1,0	250	7,3	100 250 470-510	min. 8,4 7,2-7,4 10 = 2,0	1000 700	12,3-12,4 12,3-12,5	

Torque-control travel
on flyweight assembly dimension a = mmSpeed regulation: At 1245-1260 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7
LDA 1000	0,7 bar 127,0-129,0 (125,0-131,0)	-	-	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0	./.

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 1

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 373 + RQ..PA 464	0,70	0 0,34 0,30	12,3-12,4 11,2-11,3 12,0-12,1 11,5-11,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 110 A 720 LS 375 RQ 250/1100 PA 335 DR

Komb.-Nrn. 0 402 046 179, 0 402 046 211,
0 402 046 175

supersedes .85

company: MAN

engine: D 2566 MT(F) (1)
206 kW (280 PS)

MAN-Nr. 1-7979

D 2566 MTF-Tropen
196 kW/2200 min⁻¹
(2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC) cyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

(1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH =	19,2-20,8 max. 46°	600	20,0	11,4 4,0 1350	1145-1160 1190-1220 0-1,0	250	7,4	100 min. 8,9 250 7,3-7,5 355-395 = 2,0		1100 700 870 970	12,4-12,5 13,3-13,4 13,0-13,2 12,5-12,8

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 147,0-149,0 (143,5-151,5)		-	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)			LDA 500	0 bar 110,0-113,0 (107,5-115,5)		

Checking values in brackets

Testoil-ISO 4113

B Governor Settings

(2)

MAN 11,1 q - 2 -

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	Control rod travel	rev/min	Control rod travel	Control rod travel
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,4	1145-1160	250	7,4	100	min. 8,9	1100	12,4-12,5
VH =	max. 46°			4,0	1190-1220			250	7,3-7,5	700	13,3-13,4
				1350	0 - 1,0			355-395	= 2,0	870	13,0-13,2
										970	12,5-12,8

Torque-control travel on flyweight assembly dimension a 0,2 mm Speed regulation At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(2)		-	LDA	0,2 bar	100	215,0-235,0
LDA	0,7 bar		500	115,0-119,0		(211,0-239,0)
1100	139,0-141,0			(112,0-122,0)		
	(138,0-142,0)		LDA	0 bar		
LDA	0,7 bar		500	103,0-107,0		
700	150,0-154,0			(101,0-111,0)		
	(147,0-157,0)					

Checking values in brackets

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P .. LS 375 + RQ .. PA 335 DR	0,70	0 0,20 0,32	13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En